14 June 2022

Supervisor Debra Lucero
District 2
269 E. 3rd Street, Suite 100
Chico, CA 95928
Email: DLucero@ButteCounty.net

Chico City Council members:

Andrew Coolidge, District 5
Mayor
andrew.coolidge@chicoca.gov

Dale Bennett
Councilmember, District 3
dale.bennett@chicoca.gov

Alex Brown
Councilmember, District 4
alex.brown@chicoca.gov

Sean Morgan
Councilmember, District 1
sean.morgan@chicoca.gov

Kasey Reynolds
Vice Mayor, District 6
kasey.reynolds@chicoca.gov

Deepika Tandon
Councilmember, District 7
deepika.tandon@chicoca.gov

TO:

David Abbondanza, Bethany Anderson, John Applin, William Atkinson, John Bates, Jaclyn Billups, Barry Broach, Orran Brown, Orran Brown, Jr., Dennis Carter Jr., Joshua Cheatha, Rae Cousin, Dustin Davis, Dennis Delmott, Ilze DuPlessis, Brian Earman, Kalena Ek, Emily Engle, Addie Fromholz, Lynn Crowder Greer, Sydney Gustafson, Matthew Hazzard, Ashley Hipps, Andrew Hunt, Robert Lawson, W. Grey Ligon II, Christina Llames, Kyle Martin, Erin Maruskin, Keith McKinell, Kerry L. McLaughlin, Morgan Meador, Jay Mense, Janet Selph Moyers, Kristene Mullins, Tom Nash, Julie Newton, Sionne D. Olson, Jennifer Owens, Jennifer Owren, Andrew Oxenreiter, Sri Panyala, Roma Petkauskas, Randall Pinkleton, Kevin Plasse, Srikanth Regula, Cherie L. Rickards, David Smith, Jessica Stankus Smith, Bob Staneart, Philip Strunk, Sarah Thompson, Frank Trani, Russ Turner, Coles McBrayer Warren, Breanna West, Benjamin Wilcher, Justin Wind, Jacob Woody.

BrownGreer PLC
250 Rocketts Way
Richmond, VA 23231

Judge Dennis Montalli
Courtroom 17
United States Bankruptcy Court
Northern District of California
450 Golden Gate Ave.
Mailbox 36099
San Francisco, California , 94102

Trustee
John K. Trotter, Trustee of the Fire Victim Trust
Fire Victim Trust
2 Embacdero Center
Suite 1500
San Francisco, CA 94111
www.firevictimtrust.com

Fire Victim Trust
P.O. Box 25936
Richmond, VA 23260
info@firevictimtrust.com

Fire Victims Trust
Claims Processor
P.O Box 25936
Richmond, Va 23260

Rob Bonta
California Attorney General
1300 I St, Sacramento, CA 95814

From:
David Edward Martin, In Pro Se
3108 Aloha Lane
Chico, California 95973

Subject:

Environmental Contamination of Chico; Proposition 65 Notice.

It is clear that members of State, local, Federal government and Bankruptcy Fire Victims Trust and its administrator are intentionally ignoring the severe contamination of Chico, California from the Camp Fire. Especially egregious is the Bankruptcy Victims trust and BrownGreer PLC who are ignoring the damage done to Chico and the criminal and civil violations to Chico residents, their health and their property. Browngreer PLC is negligent in the fair application of bankruptcy law and appears to have appointed itself King and makes up its own Bankruptcy laws.

It is well known common knowledge that ash and particulate matter rained down on Chico for two weeks of the Camp Fire. Besides all of the people, homes, cars, boats, trees and private property that burned and was then deposited in Chico, P G and Es own equipment burned in the fire. This means that all of its plastic wiring, junction boxes and of special concern, its transformers possibly filled with PCB carcinogenic oil contaminated Chico. Oil and other contaminants which went up with the fire and came down on Chico.

The California Air Resources Board has confirmed the contamination of Chico in their July 2021 report. The report can be found at this address: https://ww2.arb.ca.gov/sites/default/files/2021-07/Camp_Fire_report_July2021.pdf

California Air Resources Board
Camp Fire Air Quality Data Analysis
July 2021

These are excerpts from the report:

The 2018 Camp Fire was the deadliest wildfire in California history. At least 85 people died as the catastrophic wildfire burned through Butte County, destroying nearly 19,000 buildings and most of the town of Paradise. The fire generated a large plume of heavy smoke that traveled thousands of miles. The smoke caused dangerously high levels of air pollution in the Sacramento Valley and Bay Area in particular, for a period of about two weeks.

Particulate matter (PM) is typically the biggest health concern from wildfire smoke. Particles from smoke tend to be very small (with diameters of 2.5 micrometers [μm] and smaller), and can be inhaled into the deepest recesses of the lung. This size of particulate matter is often referred to as PM2.5. The tiniest, ultrafine particles in PM2.5 can pass directly into the bloodstream where they can affect the heart and other organs. During the 2018 Camp Fire, maximum PM2.5 levels for the period from November 8 through November 22 were more than three times the average levels seen during the same time period from 2010 to 2017.

The health impacts of air pollutants produced by wildfires can be significant. While the elevated levels of lead detected in Chico during the Camp Fire only lasted for about a day, these numbers are still concerning, since lead is considered a toxic air contaminant and any increased exposure can be harmful. Lead exposure has been linked to high blood pressure, reproductive effects and cancer in adults. Infants and young children are especially sensitive to low levels of lead that are known to cause behavioral changes and learning deficits. The short-term spikes in particulate matter from the Camp Fire and other wildfires included in this analysis were comparable to industrial and mobile source pollution levels seen in countries like China and India. Both countries show subsequent increases in respiratory diseases and infections, and chronic heart and lung disease, resulting in increased medical visits, hospital admissions, and risk of death. In general, short-term exposure (days or weeks) to PM2.5 and wildfire smoke has been strongly linked to increasing severity of asthma; other respiratory disease,

such as chronic obstructive pulmonary disease (COPD); inflammation or infections, including bronchitis and pneumonia; emergency department visits; and hospital admissions. Long-term exposure to PM2.5 is linked to a wide range of human health effects, such as respiratory and heart-related illnesses and hospitalizations, adverse brain effects, depression, memory loss, learning disorders, reduced lung function growth in children and premature death.

Particulate matter is the principal pollutant of concern with wildfire smoke, particularly PM2.5 (with diameters of 2.5 micrometers, far smaller than the diameter of a human hair), which can be inhaled into the lungs. PM2.5 is a complex mixture of solids and aerosols that can contain a myriad of chemical compounds, including metals, organic and elemental carbon, potassium, organic matter and geologic material, and potentially ammonium nitrate and ammonium sulfate. During the 2018 summer wildfires and the Camp Fire, Chico showed the highest concentrations of PM2.5 of the four selected speciation monitoring sites. In Chico, the PM2.5 concentration increased by nine times above the average during the summer wildfires, and almost 100 times above the average during the Camp Fire.

Metal concentrations were higher during the Camp Fire, particularly lead (Pb) and zinc (Zn), which increased dramatically (Figure 5). Other metals including calcium (Ca), iron (Fe), and manganese (Mn) were elevated during all the wildfires studied. The metal contributions to PM2.5 speciation data from the Camp Fire continued until the end of November 2018.

Manganese and lead were highest at the Chico monitoring site; concentrations increased by more than four times and 50 times above the average, respectively.

WILDFIRE SMOKE

As previously noted, wildfires produce complex mixtures of potentially harmful air pollutants, including particulate matter (PM) which is comprised of increased levels of metals, toxic air contaminants, and other chemical compounds. Smoke from any type of fire (e.g. forest, brush, crop, structure, tires, waste, or wood burning) is a complex mixture of tiny solid, liquid, and gas particles and chemicals produced by incomplete burning of carbon-containing materials. More specifically, smoke from structural fires, such as residential, commercial, and industrial fires, contains more than a hundred dangerous toxins and poisonous gases, including carbon monoxide and hydrogen cyanide. Carcinogenic compounds from the burning of household materials within structures, such as benzo(a) pyrene, toxic dioxin compounds, and benzene, have been reported.5 PM2.5 can be inhaled into the deepest recesses of the lungs and the

association between PM2.5 and heart and lung effects is well documented in scientific literature.

Adverse health effects from exposure to wildfire smoke include increases in severity of respiratory problems, such as asthma, increases in emergency department visits for heart attacks and strokes, and increased risk of premature death.6 The U.S. EPA has estimated that short-term (days to weeks) exposure to wildfire-related PM2.5 results in between 1,500 and 2,500 deaths annually.7 During the 2007 San Diego wildfires, emergency department visits increased by 34 percent for respiratory conditions in general and by 112 percent for asthma in particular, compared to pre-wildfire periods.8 During the 2003 heavy wildfire smoke conditions in Southern California, there was a 34 percent increase in asthma hospital admissions.9 There is limited information on the potential health impacts due to long-term repeated exposure to wildfire smoke over multiple seasons.10 Since wildfire smoke contains PM2.5 and PM10, the long term health impacts from wildfire smoke are expected to be in line with the effects from those pollutants.

Smoke from Structural Fires

Since wildfires, and the Camp Fire in particular, can also burn structures, such as homes, associated buildings, and vehicles occupational studies can shed light on the long-term health impacts. For example, in a long-term study of U.S. firefighters, investigators reported an excess of lung, digestive, and urinary cancers, and a rare cancer of the lung - mesothelioma (associated with asbestos exposure). Recently, the investigators reported excess leukemia and excess chronic obstructive pulmonary disease (COPD)-related deaths associated with the amount of time spent at fires.12 Some of these long-term health impacts, such as heart disease, reduced lung function, and lung cancer, are impacts also seen in populations exposed to PM2.5 and PM10. 13,14 Among the many compounds present in structures are flame retardants, commonly used in consumer products, such as furniture, textiles, building materials, and electronics. One chemical group, called phosphorus flame retardants, has shown negative hormonal effects in laboratory tests. Further, these compounds are associated with increased hyperactivity in children.15 Given these many potential sources of these compounds, and considering the byproducts of the combustion of wood, plastics, and other chemicals released from burning structures, it is clear that the tiny particles, gases and chemicals in smoke generated from structure fires are hazardous to human health.

High levels of particulate matter in wildfire smoke posed serious health risks to residents of Butte County, as well as other areas affected by the Camp Fire. On some days, for example, the PM2.5 levels in Chico far exceeded the national 24-hour standard of 35

micrograms per cubic meter (µg/ m3). Inhaling smoke from wildfires for a short time can acutely increase the severity of asthma and COPD.25 Over the entirety of the Camp Fire period, the average concentration of PM2.5 at the sites shown in Figure 2 was 64 µg/m3 , a level almost twice the 24-hour standard, ranging from 20 to 144 µg/m3. Chico was especially hard hit with the highest period average of 144 µg/m3 and a maximum high daily-average of 412 µg/m3 , almost 12 times the 24-hour standard.

CARB has led efforts to reduce lead exposures, including cleaner fuels regulations, and identified lead as a "toxic air contaminant" in 1997.27 The EPA set the National Ambient Air Quality Standards (NAAQS) for lead at 0.15 µg/m3 , using a 3- month average concentration. The NAAQS for lead is set by calculating the monthly average of the lead concentrations at each monitor and averaging that value with the prior two months' average concentrations. The NAAQS standard is based on health effects that include adverse brain development in children and high blood pressure, and reproductive effects, and cancer in adults. Infants and young children are especially sensitive to low levels of lead that are known to cause behavioral changes and learning deficits. During the Camp Fire, for a period of 17 hours on November 10th, the ambient lead concentration was elevated to an average of 0.13 µg/m3. Levels of PM2.5 recorded by the parallel filter sampler climbed dramatically after the shutdown of the over-loaded speciation sampler in 17 hours. Estimating the lead levels from the 17 hours of sampling to a 24-hour sampling time, the potential daily lead level would be approximately 0.17 µg/m3 for the PM2.5 sample. While this higher level of lead was only seen for one day and therefore cannot be compared to the national 3-month average standard, the peak level of lead for the Camp Fire is concerning since lead is considered a toxic air contaminant that accumulates in human bodies, especially children, and any increased levels of exposure could be harmful.

The highest organic carbon concentrations during the Camp Fire were reported in the Chico area. The speciation sampler at Chico detected peak concentrations of 111 µg/m3 , almost five times the peak concentrations (21 µg/m3) recorded at the same site during the Carr, Mendocino, or Ferguson fires. The average organic carbon concentration at Chico during the Camp fire (92 µg/m3 for two days of sampling) was approximately ten times higher than what was recorded during the summer wildfires. The organic carbon component of PM2.5 from wildfires and biomass combustion accounts for approximately 50 to 67 percent of the PM mass, is a complex chemical mixture, and contains numerous toxic compounds. One example of a toxic class of compounds present in organic carbon in wildfires is polycyclic aromatic hydrocarbons (PAHs).32 Many PAHs, or their chemical derivatives, can cause DNA damage and cancer.33 These compounds can also cause inflammation that can damage the lungs and other organs, such as the heart.34 Additional toxic compounds present in organic

carbon from wildfires, especially from burning of structures, include plasticizers, flame retardants, metals, and aldehydes.35 To our knowledge, the levels of PAHs and these additional toxic compounds were not measured during the Camp Fire. The level of organic carbon measured in the Camp Fire can potentially result in increased health risks since organic carbon is a principal component of PM2.5 and contains numerous toxic compounds that can cause potential acute lung and heart damage and chronic health effects, such as cancer.

IT SHOULD BE NOTED THAT THE CALIFORNIA AIR RESOURCES REPORT ONLY TAKES INTO ACCOUNT PARTICULATE MATTER FLOATING IN THE AIR AND NOT THE HEAVY ASH AND SMOKE PARTICULATES THAT SETTLED ON PEOPLE AND THEIR PROPERTY IN CHICO.

CRIMINAL VIOLATIONS COMMITTED BY P G AND E TO THE RESIDENTS OF CHICO, CALIFORNIA.

Currently P G and E is facing Criminal and Civil liability for causing the Zogg fire. There are numerous lawsuits against P G and E. These are lawsuits that Chico residents would pursue against P G and Es contamination of property and bodily injury (the Tort of Battery with particulate matter and ash among other criminal and civil actionable claims) from the Camp Fire fallout. Currently P G and Es bankruptcy bars action against P G and E for these damages by all the residents of Chico who were wronged. The only recourse is the bankruptcy Court and BrownGreer PLC has determined that the contamination of Chico by P G and E is insignificant at best. BrownGreer PLC is acting as the de facto Bankruptcy Judge in this matter.

BrownGreer PLC are ignoring P G and Es violations of law and civil tort as to Chico residents and consider the pollution caused by P G and E and the personal injuries from the Camp Fire as identified by the California Air Resources Board report to be a minor nuisance claim.

BrownGreer PLC and the Bankruptcy Trust are ignoring residents of Chico damages and making their own Bankruptcy law.

P G and E was unable to hide behind Bankruptcy Court for the Zogg fire and recently settled criminal and civil damages for the Dixie Fire.

Civil tort damages are many for P G and Es reign of terror on California residents. One need not live in a fire burn scar area to be entitled to these damages. The California Air

Resources Board has clearly stated this. You need not be in the burn perimeter of a fire to be in the affected zone.

I reported the environmental crimes of P G and E to Butte County District Attorney Michael Lee Ramsey as well as the California Attorney General, California OSHA and EPA and Federal EPA for causing air and water pollution in Chico. Ramsey ignored my report/request. I believe Ramsey ignored my report because he harbors resentment toward me for reporting him for the physical child abuse of his two juvenile daughters when I was a Butte County Deputy Sheriff. So his petty ignorance was no surprise.

Currently P G and E has pled not guilty to all counts charged for causing the Zogg Fire. I suspect that Butte County District Attorney Michael Lee Ramsey did not pursue criminal charges of pollution against P G and E because he is compromised by his extortion of P G and E in the dropping of criminal charges against P G and E which then lead to the Camp Fire. Ramsey received 1.5 million from P G and E to assist them in avoiding a federal felony probation violation of their federal felony probation for the pipeline explosion that killed 8 people in San Bruno. This was a clear criminal violation of the Hobbs Act.

Shasta County District Attorney Stephanie Bridgett is not compromised like Ramsey and has filed 31 criminal counts against P G and E, as well as 5 enhancements.

Counts 18 through 22 are for Negligent emission of air pollution.

NEGLIGENT EMISSION OF AIR POLLUTION, in violation of Section 42400.1(a) of the Health and Safety Code, a Misdemeanor. Defendant (s) PACIFIC GAS AND ELECTRIC COMPANY (PG&E), On or about the 27th day of September, 2020, did negligently emit an air contaminant, to wit, wildfire smoke and related particulate matter and ash, in violation of Health and Safety Code sections 41700 and 41701(a). Health and Safety Code section 41700 prohibits the discharge from any source whatsoever of quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. Health and Safety Code section 41701 prohibits the discharge into the atmosphere from any source whatsoever of any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Counts 23 through 27 are for Reckless Emission of air pollution.

RECKLESS EMISSION OF AIR POLLUTION, in violation of Section 42400.3(b) of the Health and Safety Code, a Misdemeanor. Defendant (s) PACIFIC GAS AND ELECTRIC COMPANY (PG&E), On or about the 27th day of September, 2020, with reckless disregard for the risk of great bodily injury to, or death of, any person, did emit an air contaminant, to wit, wildfire smoke, and related particulate matter and ash, in violation of Health and Safety Code section 41700, that did result in an unreasonable risk of great bodily injury to, or death of, any person.

Both Negligent and Reckless emission of air pollution have state defined civil penalties. It appears that P G and E is using the Bankruptcy Court to evade these penalties and the citizens of Chico have no rights to compensation or civil lawsuit against P G and E. We also have no rights to fair compensation in Bankruptcy as determined by BrownGreer PLC.

California Code, Health and Safety Code - HSC § 42402.1
(a) Any person who negligently emits an air contaminant in violation of this part or any rule, regulation, permit, or order of the state board or of a district, including a district hearing board, pertaining to emission regulations or limitations is liable for a civil penalty of not more than twenty-five thousand dollars ($25,000).
(b) Any person who negligently emits an air contaminant in violation of Section 41700 that causes great bodily injury, as defined by Section 12022.7 of the Penal Code , to any person or that causes the death of any person, is liable for a civil penalty of not more than one hundred thousand dollars ($100,000).
(c) Each day during any portion of which a violation occurs is a separate offense.

Statutory Penalties for Air Pollution Violations
Air pollution violations may result in either criminal or civil liability.
Relevant criminal penalties are contained in California Health and Safety Code sections 42400, 42400.1, 42400.2, 42400.3, 42400.3.5, and 42400.4.

Enforcement authority for civil penalties, as required by the State Implementation Plan, can be found in the California Health and Safety Code Civil Penalties sections 42402, 42402.1, 42402.2, 42402.3, 42402.4, and 42402.5.
$5,000 per Day Strict Liability

Under Section 42402(a), a person is strictly liable for a civil penalty of $5,000 per day for violating any provision of the Health and Safety Code section within Part 4 of Division 26 of the code or any order, permit, rule, or regulation of a district, including a

district hearing board, or of the state Air Resources Board issued pursuant to Parts 1 through 4 of Division 26 of the code.

What this means in plain language is that a person who violates any provision of the Health and Safety Code is strictly liable for a civil penalty of $5,000 per day.

$10,000 per Day
Under Section 42402(b), a person may be liable for a civil penalty of up to $10,000 per day if that person has violated any Health and Safety Code section in Part 4 of Division 26 of the code, or any order, permit, rule, or regulation of a district, including a district hearing board, or of the state Air Resources Board issued pursuant to Parts 1 through 4 of Division 26 of the code.

What this means in plain language is that a person who violates applicable state law, will be subject to a civil penalty of up to $10,000 per day unless the violator can establish that the violation was not the result of intentional or negligent conduct. If the violation involves the emission of air contaminants, the penalty could be higher than $10,000 per day.

$25,000 per Day
Under Section 42402.1, a person may be liable for a civil penalty of up to $25,000 per day if that person has negligently emitted an air contaminant in violation of Part 4 of Division 26 of the code, or any rule, regulation, permit or order of the state Air Resources Board or district board pertaining to emission regulations or limitations. What this means in plain language is that a person who carelessly, inattentively, or inadvertently violates air pollution rules, causing the emission of air contaminants, will be subject to a civil penalty of up to $25,000 per day. Moreover, if the negligent emission of air contaminants causes actual harm to an individual, a civil penalty of up to $100,000 per day may be imposed.

In addition, if the violation results in a situation of public nuisance under Health and Safety Code Section 41700 which causes injury to the public, the potential penalty increases to $15,000 per day. See Section 42402(c).

$40,000 per Day
Under Section 42402.2, a person may be liable for a civil penalty of up to $40,000 per day if that person has emitted an air contaminant in violation of Part 4 of Division 26 of the code, or any order, rule, regulation, or permit of the state Air Resources Board or district board pertaining to emission regulations or limitations, provided the person knew of the emission and failed to take corrective action within a reasonable time under the

circumstances. Moreover, if the knowing emission of air contaminants causes actual harm to an individual, a civil penalty of up to $250,000 per day may be imposed. "Corrective action" means a termination of the emission violation or the grant of a variance from the applicable order, rule, regulation or permit, or compliance with a regulation excusing the violation.

What this means in plain language is that a person who violates air pollution rules will be subject to a civil penalty of up to $40,000 per day if the violation causes the emission of an air contaminant and the person knows of the emission but fails to act promptly to halt the emission.

What matters is that there was a violation that caused an emission and the person knew of the emission without acting as quickly as he could have to stop it. The person's knowledge of the emission and the failure to act promptly are the key elements in making this a serious type of violation.

$75,000 Per Day
Under Section 42402.3, a person may be liable for a civil penalty of up to $75,000 per day if that person willfully and intentionally emits an air contaminant in violation of any Health and Safety Code section in Part 4 of Division 26 of the code or any order, rule or regulation of the state Air Resources Board or district pertaining to emission regulations or limitations.

If the willful and intentional emission of air contaminants causes injury to any person or results in a violation of Health and Safety Code Section 41700 which poses a risk of injury to any person, one may be liable for a civil penalty of up to $125,000 per day and a corporation may be liable for an amount up to $500,000 per day. If the willful and intentional emission of air contaminants causes great bodily injury or death, a person may be liable for a civil penalty of up to $250,000 per day and a corporation may be liable for an amount up to $1,000,000 per day.

Policy of Judging Each Violation Individually
As a matter of state law, a court is obligated to evaluate each violation individually and with reference to all relevant facts and circumstances.

The Chico area remains heavily contaminated but there has been no action by local government to test the contamination levels. We Chico residents are caught in a catch 22 in which P G and E has used bankruptcy to evade liability and the Bankruptcy trust

has determined that this contamination and poisoning of our lungs, bodies, water ways, air and property, poison that remains to this day is only a nuisance claim.

Chico residents have been betrayed by the local government, Butte County District Attorney Michael Lee Ramsey and BrownGreer PLC in this process. Even local power crazed career politicians who claim they are environmentalists are allowing an environmental disaster to slowly kill Chico residents.

No one is taking responsibility for the environmental testing and clean up of Chico.

A severe change is coming to all levels of government. Economists are predicting a severe economic depression and civil unrest. The Federal government has printed trillions of currency in the past few years and it is time to pay the piper. This will result in significant shrinkage to the government and pay and benefits. The party is about to be over. I hope during this transition that everyone in the local government who let Chico remain contaminated and damaged without fair compensation and protection find themselves on the right side of history.

PACIFIC GAS AND ELECTRIC COMPANY'S POWER EQUIPMENT IN THE CAMP FIRE BURNED UP AND LANDED IN CHICO POLLUTING THE CITY. THERE WERE MANY P G AND E TRANSFORMERS IN PARADISE. DID THESE TRANSFORMERS CONTAIN PCB (Polychlorinated biphenyls) OIL WHICH IS CARCINOGENIC ? IF SO THIS CARCINOGENIC OIL RAINED DOWN ON CHICO AND IS STILL PRESENT. HAS ANYONE IN LOCAL GOVERNMENT ASKED FOR AN INVESTIGATION INTO THIS AND WHAT P G AND E OWNED THAT CONTAMINATED CHICO ?

PROPOSITION 65 AS IT RELATES TO THE CONTAMINATION OF CHICO, RESPONSIBILITY AND THE CHAIN OF RESPONSIBILITY IN LOCAL GOVERNMENT AND THE BANKRUPTCY TRUST:

P G and E is a company doing business in California. It delivers products in the form of electricity and natural gas. Its own equipment and property subject it to California's voter initiative proposition 65. Besides the tons of carcinogenic toxic chemicals that P G and E deposited on Chico from its stupidity in causing the Camp Fire, its own equipment contaminated Chico. Again, has anyone asked P G and E if any of its transformers or any other P G and E equipment that burned in Paradise and the surrounding area contained Polychlorinated biphenyls ? were any of their transformers made before 1979 ? What did P G and E lose in the Camp Fire that is on the Proposition 65 list ?

There are many other things that P G and E owned that were carcinogenic that burned in the fire. They must have had equipment that contained lead and mercury. The California Proposition list is very extensive and I am sure that P G and E property that burned in the Camp Fire contained carcinogens on that list.

The high lead levels reported by the California Air Resources Board are now in the lungs, body and on the property of Chico Residents.

Both lead and Polychlorinated biphenyls (PCBs) are on the Proposition 65 list:

Chemical Type of Toxicity CAS No. Date Listed

Polychlorinated biphenyls cancer --- October 1, 1989
Polychlorinated biphenyls developmental --- January 1, 1991
Polychlorinated biphenyls; cancer --- January 1, 1988
Lead developmental, female, male; February 27, 1987
Lead and lead compounds cancer --- October 1, 1992
Lead acetate cancer 301-04-2 January 1, 1988
Lead phosphate cancer 7446-27-7 April 1, 1988
Lead subacetate cancer 1335-32-6 October 1, 1989

Has anyone from the local government or the Fire Victims Trust asked P G and E if any of their property or equipment that burned in the fire contained carcinogens or developmental toxins on the proposition 65 list ? It is unlikely that they owned no equipment, chemicals or property that was not.

Proposition 65:

California Code, Health and Safety Code - HSC § 42402.1
(a) Any person who negligently emits an air contaminant in violation of this part or any rule, regulation, permit, or order of the state board or of a district, including a district hearing board, pertaining to emission regulations or limitations is liable for a civil penalty of not more than twenty-five thousand dollars ($25,000).
(b) Any person who negligently emits an air contaminant in violation of Section 41700 that causes great bodily injury, as defined by Section 12022.7 of the Penal Code , to any person or that causes the death of any person, is liable for a civil penalty of not more than one hundred thousand dollars ($100,000).
(c) Each day during any portion of which a violation occurs is a separate offense.

California Code, Health and Safety Code - HSC § 25249.5
No person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical passes or probably will pass into any source of drinking water, notwithstanding any other provision or authorization of law except as provided in Section 25249.9 .

California Code, Health and Safety Code - HSC § 25249.6
No person in the course of doing business shall knowingly and intentionally expose any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual, except as provided in Section 25249.10 .

California Code, Health and Safety Code - HSC § 25249.7
(a) A person who violates or threatens to violate Section 25249.5 or 25249.6 may be enjoined in any court of competent jurisdiction.
(b)(1) A person who has violated Section 25249.5 or 25249.6 is liable for a civil penalty not to exceed two thousand five hundred dollars ($2,500) per day for each violation in addition to any other penalty established by law. That civil penalty may be assessed and recovered in a civil action brought in any court of competent jurisdiction.

California Code, Health and Safety Code - HSC § 25249.11
For purposes of this chapter:
(a) "Person" means an individual, trust, firm, joint stock company, corporation, company, partnership, limited liability company, and association.
(b) "Person in the course of doing business" does not include any person employing fewer than 10 employees in his or her business; any city, county, or district or any department or agency thereof or the state or any department or agency thereof or the federal government or any department or agency thereof; or any entity in its operation of a public water system as defined in Section 116275 .
(c) "Significant amount" means any detectable amount except an amount which would meet the exemption test in subdivision (c) of Section 25249.10 if an individual were exposed to such an amount in drinking water.

Toxic levels of Lead have been confirmed in the air in Chico during the Camp Fire by the California Air Resources Board. None of the government entities in the chain of responsibility have made any provision or effort to test and identify the contamination of Chico. There has been no discussion of cleanup of this contamination.

There has been a government blackout of the required Proposition 65 notice to at least notify Chico residents that their property was contaminated by P G and E.

It would appear that many California laws and civil remedies are being hidden behind Bankruptcy. The Bankruptcy Trust administered by BrownGreer PLC is intentionally underestimating the claims of Chico residents, apparently making up its own Bankruptcy law without authorization or consultation from the Trustee and Bankruptcy Judge.

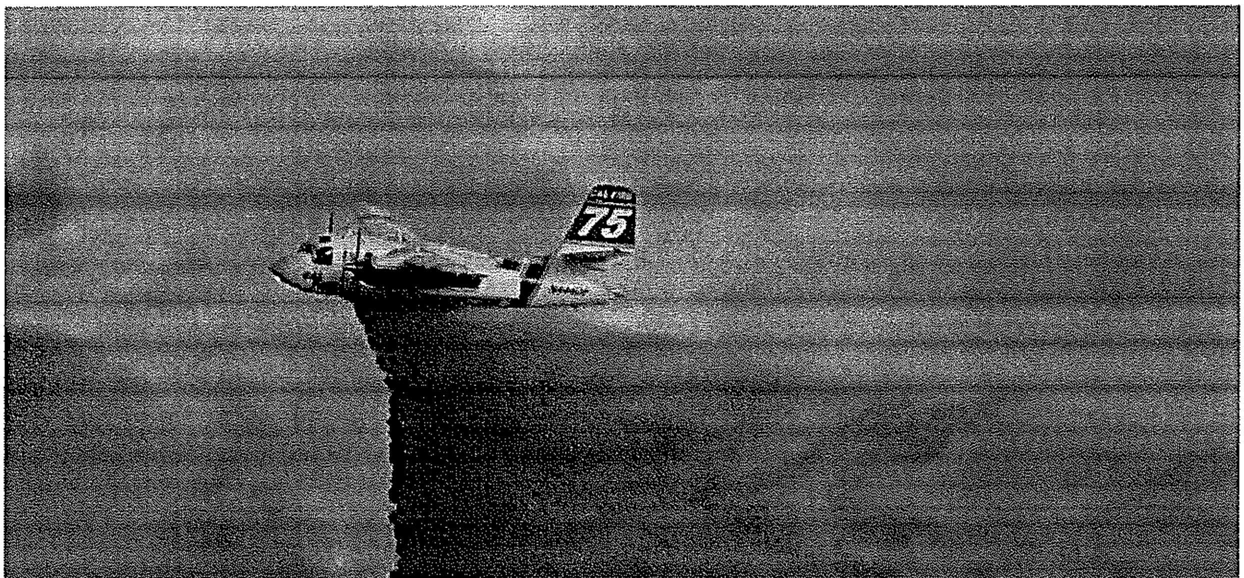
I have outlined the valid claims of Chico residents for the bankruptcy claims of Chico residents and they are not claims of nuisance. Battery by particulate carcinogens is not a nuisance but a potential sentence of death and disability. In addition, the environmental damage done to Chico residents property is as significant as the damage done to paradise property. At least paradise residents had their property cleaned of environmental toxins and carcinogens whereas Chico has been left holding the cancer bag by Butte County District Attorney Michael Lee Ramsey, the Chico City Council, the Butte County Board of Supervisors, my own Board Representative, Debra Lucero (a supposed liberal environmentalist) and the Fire Victim Trust as it is being mis-administered by BrownGreer PLC.

BANKRUPTCY CLAIMS OF CHICO RESIDENTS ARE SIMPLE, P G AND E COMMITTED BATTERY BY ITS WILLFUL NEGLIGENT BEHAVIOR AND POLLUTED OUR PERSONS AND PROPERTY CAUSING ACTIONABLE DAMAGES. THESE DAMAGES WILL CONTINUE INTO THE FUTURE AND ARE NOT A MERE NUISANCE, THEY ARE A DEATH SENTENCE BY A NEGLIGENT ABUSIVE GOVERNMENT AND THEIR BUREAUCRATIC ADMINISTRATORS.

The California Air Resources Board (CARB), Camp Fire Air Quality Data Analysis, July 2021 report is attached for your review.

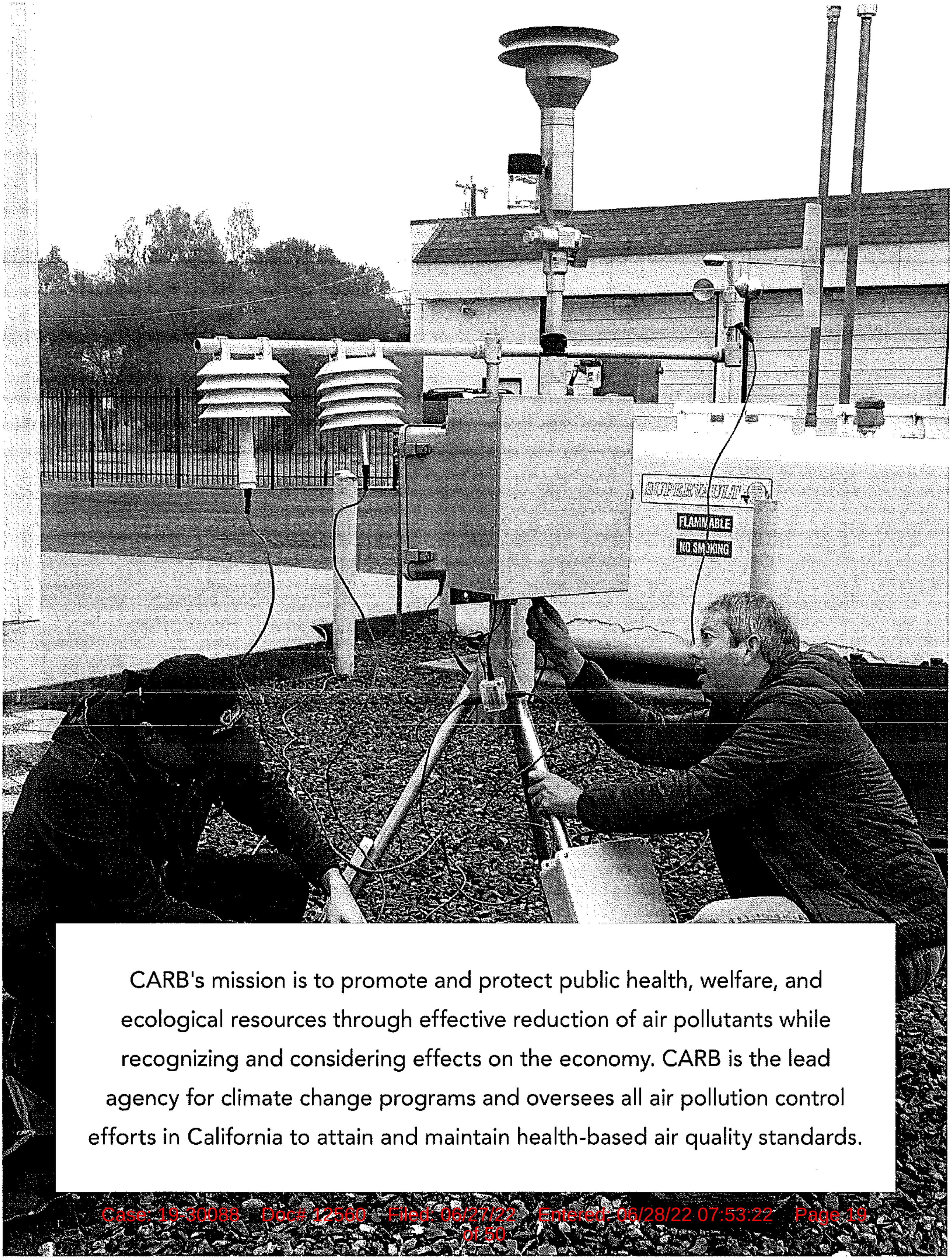
CALIFORNIA
AIR RESOURCES BOARD

July 2021



Camp Fire Air Quality Data Analysis

Cover image courtesy of CAL FIRE



CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. CARB is the lead agency for climate change programs and oversees all air pollution control efforts in California to attain and maintain health-based air quality standards.

Contents

Executive Summary

The 2018 Camp Fire was the deadliest wildfire in California history. At least 85 people died as the catastrophic wildfire burned through Butte County, destroying nearly 19,000 buildings and most of the town of Paradise. The fire generated a large plume of heavy smoke that traveled thousands of miles. The smoke caused dangerously high levels of air pollution in the Sacramento Valley and Bay Area in particular, for a period of about two weeks.

Staff at the California Air Resources Board (CARB) compared air quality data from the Camp Fire with three other large wildfires in 2018 that burned mostly vegetation. When wildfires burn structures, they produce a range of harmful and toxic substances. CARB's analysis shows this was indeed the case during the Camp Fire, when elevated levels of lead and zinc were detected, as well as calcium, iron and manganese. Some of these metals traveled more than 150 miles, and were detected in the air as far away as San Jose and Modesto.

The Paradise Gardens community in Paradise, California, was devastated by the November 2018 Camp Fire.

Particulate matter (PM) is typically the biggest health concern from wildfire smoke. Particles from smoke tend to be very small (with diameters of 2.5 micrometers [μm] and smaller), and can be inhaled into the deepest recesses of the lung. This size of particulate matter is often referred to as $PM_{2.5}$. The tiniest, ultrafine particles in $PM_{2.5}$ can pass directly into the bloodstream where they can affect the heart and other organs. During the 2018 Camp Fire, maximum $PM_{2.5}$ levels for the period from November 8 through November 22 were more than three times the average levels seen during the same time period from 2010 to 2017.

The number of buildings burned during this fire was significant, and not something traditionally seen in California wildfires. The Carr Fire, which burned over 50 percent more acreage in the Shasta-Trinity National Forest in late July and August of 2018, destroyed about 1,600 buildings. The Mendocino Complex Fire, occurring during the same time period, burned almost three times the acreage of the Camp Fire, but destroyed only about 250 buildings. CARB staff used data from these wildfires, as well as that collected during the Ferguson Fire in Mariposa County, which burned mostly inaccessible wildland areas during the same basic time period (late summer 2018). The goal was to better understand the air quality differences that might occur between wildfires that burn primarily vegetation, such as the Ferguson Fire, and those that burn more structures. Staff also examined potential additional health impacts that could arise from structure-burning wildfires in more populated areas.

All four wildfires showed increases in $PM_{2.5}$ levels, with higher concentrations measured at sites closer to the fires. Data from all four fires showed increases in the metal composition of $PM_{2.5}$ as well. Only the Camp Fire, however, saw significant increases in both lead and zinc. Lead was highest in Chico, which was the closest available monitoring site to the Camp Fire, while zinc levels were slightly higher at the monitoring site in Modesto, roughly 150 miles away. It is unclear if sources other than the Camp Fire may have contributed to the zinc detected in Modesto. Other components, such as organic carbon and potassium ions, used as a way to chemically trace the presence of smoke, were elevated during all the wildfires, with the highest levels also occurring in Chico during the Camp Fire. Data collected during the four wildfires showed no significant differences in other chemical components of $PM_{2.5}$.

The health impacts of air pollutants produced by wildfires can be significant. While the elevated levels of lead detected in Chico during the Camp Fire only lasted for about a day, these numbers are still concerning, since lead is considered a toxic air contaminant and any increased exposure can be harmful. Lead exposure has been linked to high blood pressure, reproductive effects and cancer in adults. Infants and young children are especially sensitive to low levels of lead that are known to cause behavioral changes and learning deficits.

The short-term spikes in particulate matter from the Camp Fire and other wildfires included in this analysis were comparable to industrial and mobile source pollution levels seen in countries like China and India. Both countries show subsequent increases in respiratory diseases and infections, and chronic heart and lung disease, resulting in increased medical visits, hospital admissions, and risk of death.

In general, short-term exposure (days or weeks) to $PM_{2.5}$ and wildfire smoke has been strongly linked to increasing severity of asthma; other respiratory disease, such as chronic obstructive pulmonary disease (COPD); inflammation or infections, including bronchitis and pneumonia; emergency department visits; and hospital admissions. Long-term exposure to $PM_{2.5}$ is linked to a wide range of human health effects, such as respiratory and heart-related illnesses and hospitalizations, adverse brain effects, depression, memory loss, learning disorders, reduced lung function growth in children and premature death.

CARB is sponsoring several studies that will provide additional insight into both the short-term and long-term health impacts of wildfire smoke. CARB-funded investigators are currently studying the associations between short-term exposure to wildfire $PM_{2.5}$ and loss of work days and increases in asthma attacks. CARB is also funding a long-term health effects study in which primates were naturally exposed during infancy to wildfires and continue to be monitored throughout adulthood. Additionally, CARB is pursuing future research to examine the effects of repeated short-term exposures to $PM_{2.5}$ that are becoming more common with large wildfires and longer wildfire seasons in California.

Increased monitoring of wildfire pollution, particularly during fires with higher incidences of structures burning, is paramount to understand the impacts these different types of fires have on air quality as well as the health of California's citizens. Partly as a result of this analysis, and the recent severity and scale of wildfires in California, CARB is proposing an expansion of monitoring efforts, including an increased response with portable samplers for both particulate matter and air toxics. In addition, CARB will modify sampling frequencies and durations as needed and increase its cooperation with CalOES to better understand the components of each type of wildfire smoke, while also providing the public with more detailed information about smoke impacts.

Background

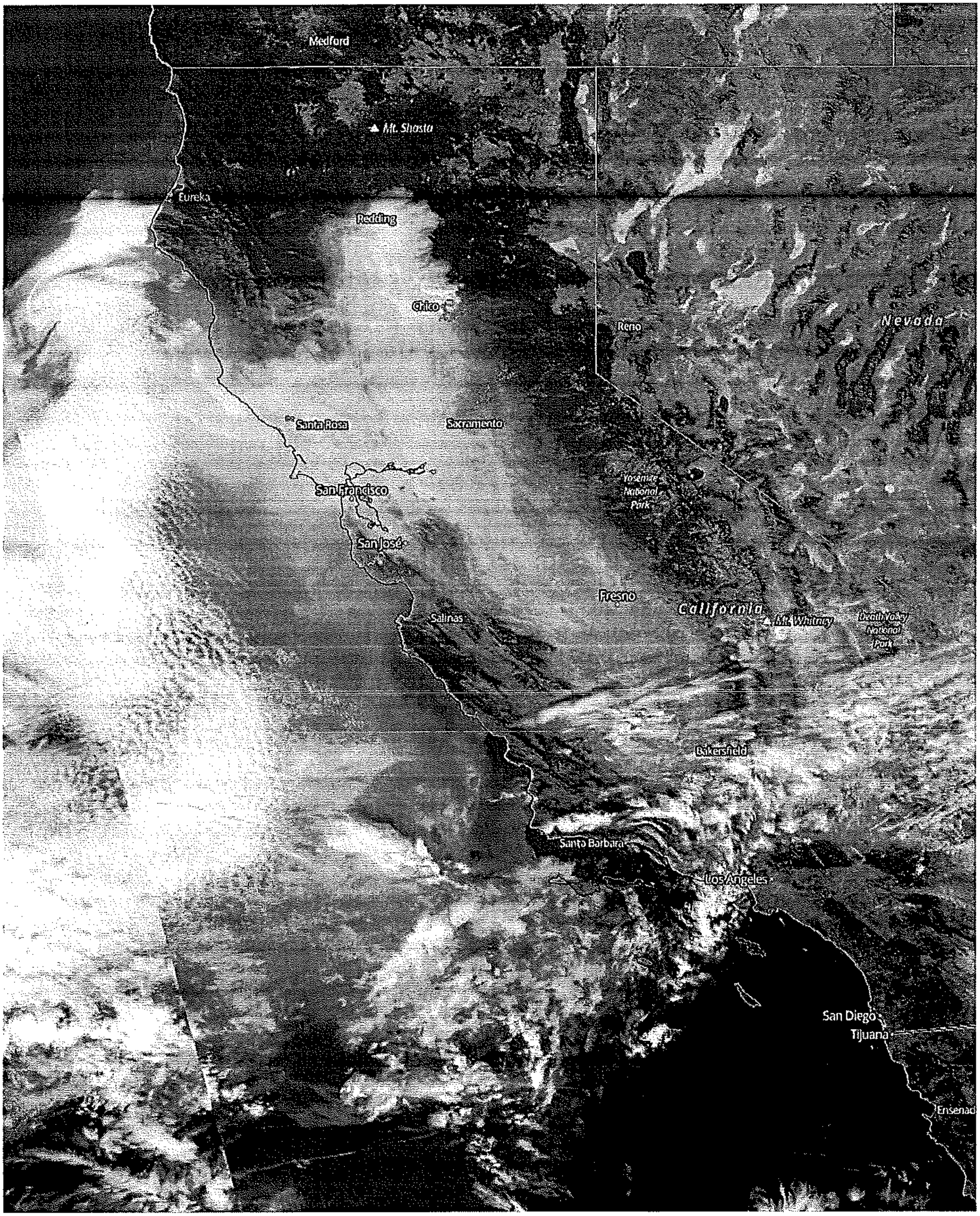
The Camp Fire burned more than 150,000 acres, including most of the town of Paradise, from November 8 until November 25, 2018, when it was considered fully contained. Eighty-five people died as a direct result of the fire, which also destroyed almost 19,000 structures (14,000 of them residences).[1] Recovery efforts continue to this day, with rebuilding ongoing for both residents and businesses in the community.

Smoke from the fire began impacting communities almost immediately. Thick smoke plumes initially spread due west, migrating toward the coast (see Figure 1 and images in Appendix B) and eventually impacting areas both to the south and the north. There was some impact in the mountains to the east, but prevailing winds kept those impacts minimal. Smoke advisories were issued by various local air districts almost immediately. With the first initial impacts recorded on November 8, the highest levels of particulate matter (PM) were recorded between November 13 and November 16, and concentrations finally returned to normal conditions, below current state and federal PM ambient air quality standards (standards), by November 22.

This document brings together an understanding of the monitoring efforts in place at the time of the Camp Fire, analysis of the air quality data collected, and an overview of the impacts on public health. Proposed additional research efforts on the impacts of short- and long-term smoke exposure, and increased monitoring plans and needs are also discussed.

1 www.fire.ca.gov/incidents/2018/11/8/camp-fire/, accessed 4/13/2020.

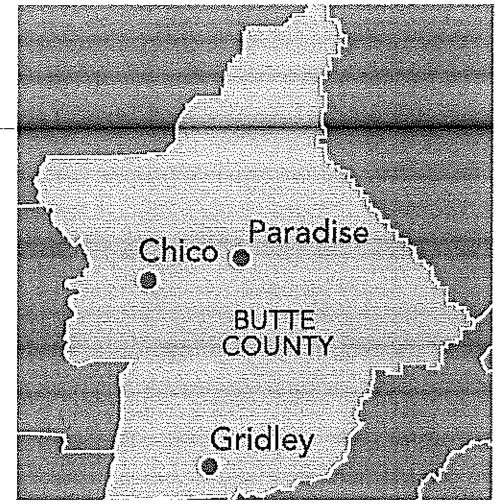
Figure 1: Camp Fire Smoke Impacts – November 16, 2018[2]



2 MODIS Aqua Corrected Reflectance (True Color) Satellite Image, NASA Worldview, *worldview.earthdata.nasa.gov*, downloaded 10/7/20

Monitoring and Air Quality

Monitoring



During the 2018 Camp Fire in Paradise, California, all of the Butte County ambient air monitoring sites were in operation. The California Air Resources Board (CARB) operates monitoring stations in Chico (carbon monoxide [CO], nitrogen dioxide [NO_2], ozone, particulate matter [PM_{10} and $PM_{2.5}$], and toxics), Gridley ($PM_{2.5}$), and Paradise (ozone and $PM_{2.5}$).

Two monitoring sites located in Paradise did not collect data during the Camp Fire; the ozone monitor at the Paradise-Airport site and the PM monitor at the Paradise-Theater site ceased operations when Pacific Gas and Electric Company (PG&E) cut power to the area on November 8. A filter-based monitor at the Chico site, 15 miles away from the Camp Fire, continued to operate, collecting samples on November 10, 2018, and November 16, 2018, (on an every 6th day collection schedule). The Chico site also collected data using a specialized speciation sampler, which uses filters to collect samples of particulate matter. The filters are later processed in a laboratory to determine the chemical composition of the particulate matter. Among other details, speciation helps quantify $PM_{2.5}$ mass, trace elements, wood smoke tracers, carbon, and ions.[3]

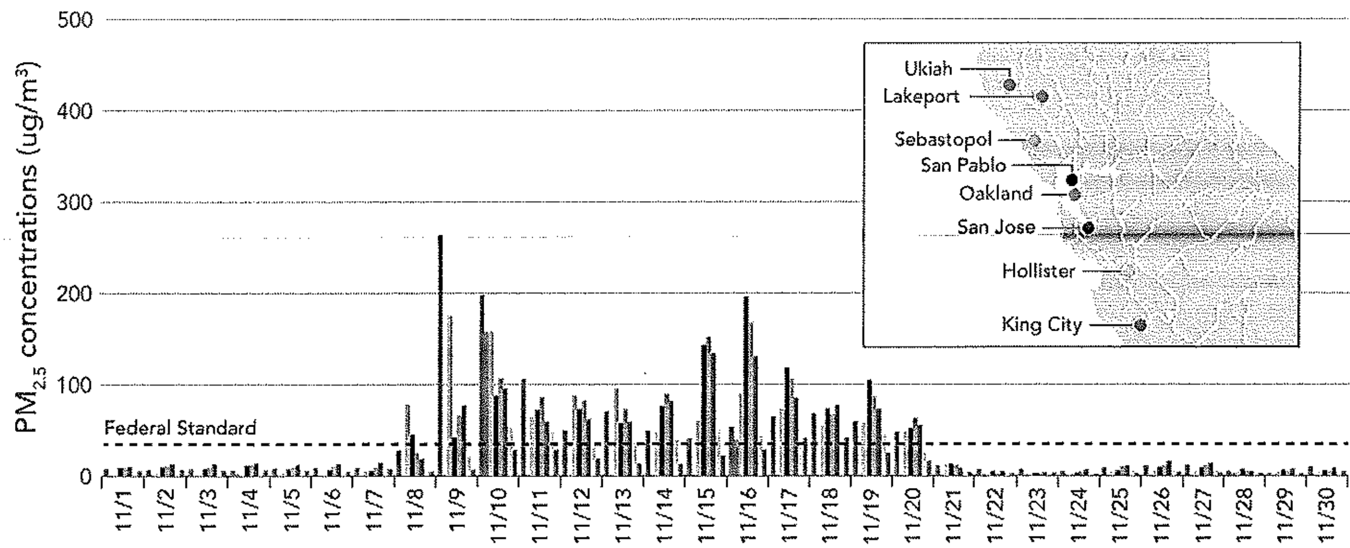
Air Quality

Particulate matter increased at most sites in Northern California west and south of the Camp Fire (Figure 2). The highest PM concentrations were recorded in Chico, the closest monitoring site to the Camp Fire and in the direct path of the smoke plumes (Figure 3). The average PM concentrations at selected monitoring sites showed significant increases when compared to both historical (2010 to 2017) November averages and to the period in which the Camp Fire occurred (Figure 3; Tables 2 and 3). From November 8 to November 22, $PM_{2.5}$ increased by more than 300 percent from historical averages.

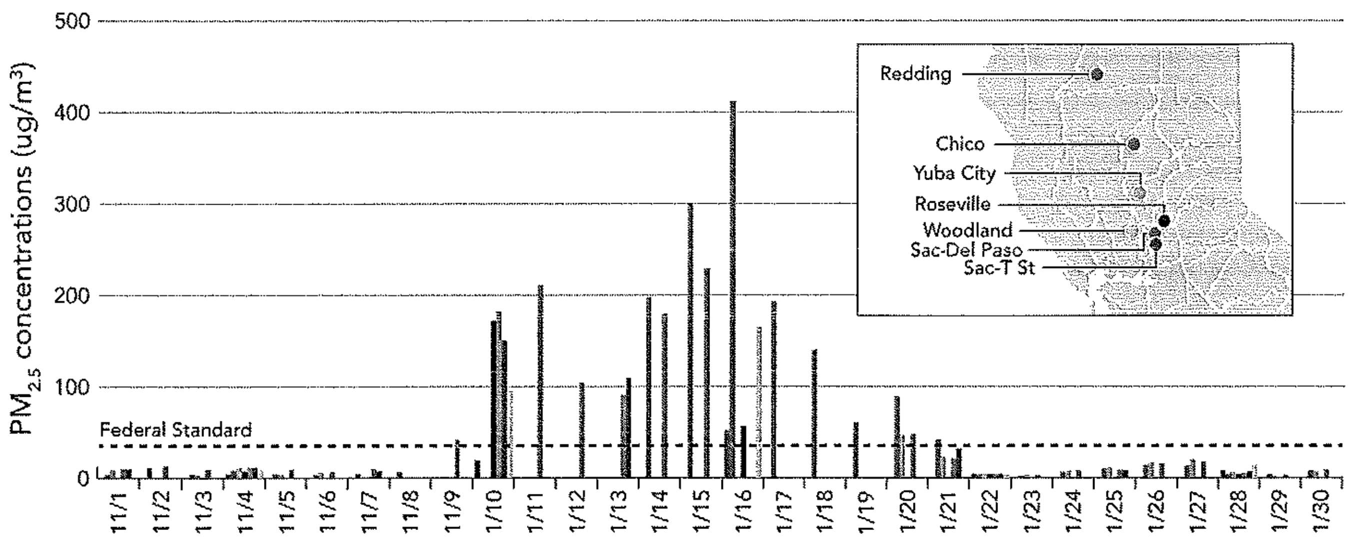
3 The Chico speciation sampler shut down as designed to protect the equipment on two occasions due to particulate loading from the smoke that exceeded designated safety limits. As a result, the sampling durations on November 10 and November 16 were less than 24 hours, as required by USEPA for submission to the Air Quality System (AQS) database. However, the speciation sampler was able to maintain the required flow rates for more than 17 hours on November 10 and more than 13 hours on November 16. While that data could not be formally reported to AQS, it was sufficient for CARB staff to analyze. All laboratory quality control criteria, as specified in CARB's standard operating procedures (SOP), were determined to be within acceptable limits. All other valid data collected from the Butte County air monitoring sites has been reported to AQS.

FIGURE 2: DAILY $PM_{2.5}$ CONCENTRATIONS – NOVEMBER 2018

Coastal



Sacramento Valley



San Joaquin Valley

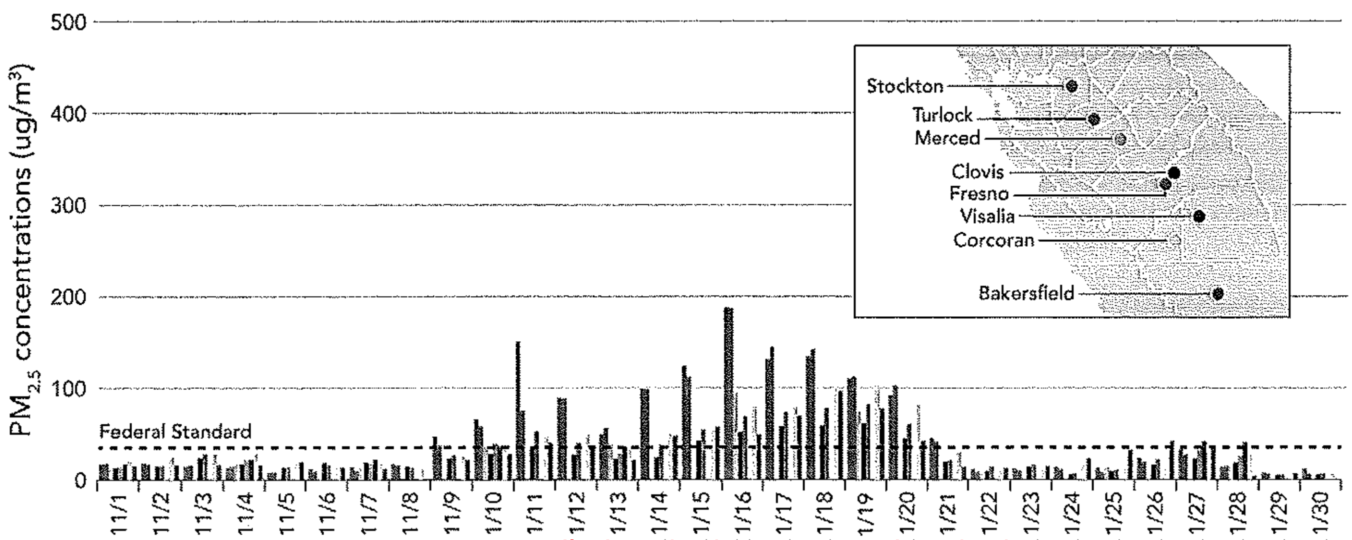
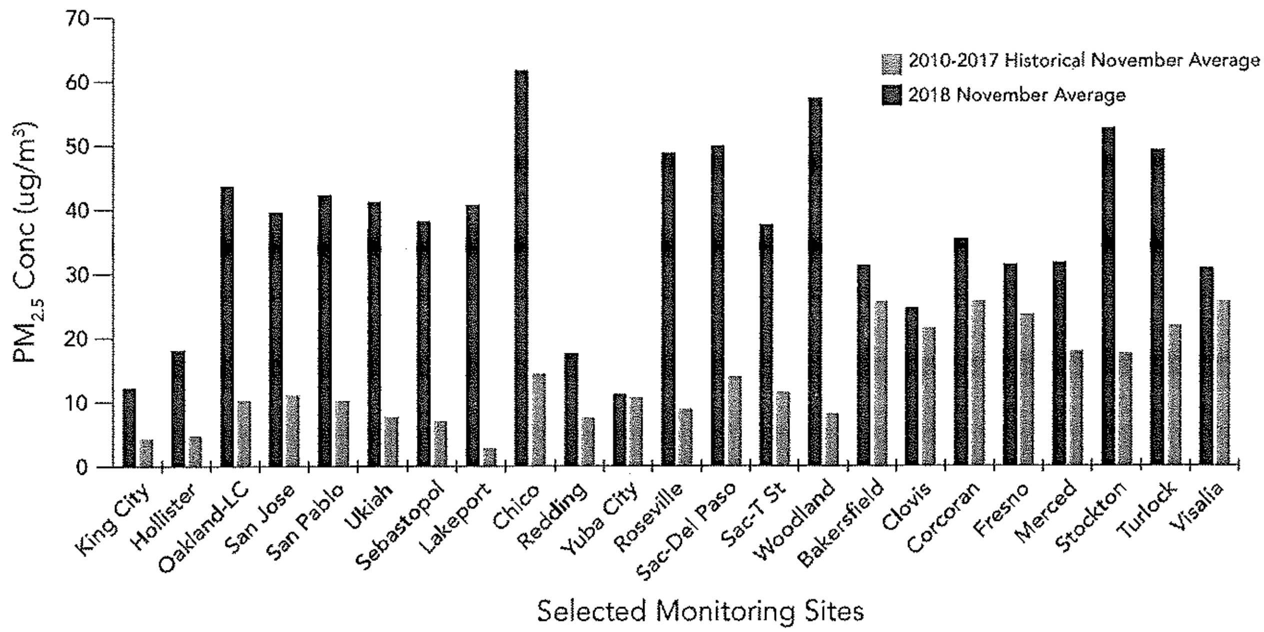


FIGURE 3: NOVEMBER MONTHLY AVERAGE CONCENTRATIONS AT SELECTED SITES – NOVEMBER 2018 COMPARED TO AVERAGE OF NOVEMBERS 2010-2017



The following tables highlight the significant increase in $PM_{2.5}$ concentrations recorded at selected sites in the path of the smoke plume and compares them to average concentrations from the previous eight years (2010-2017).

TABLE 1: MAXIMUM PM CONCENTRATIONS AT FOUR SELECTED SITES

Site	$PM_{2.5}$	
	Concentration (µg/m³)	Date
Chico	412	11/16/18
Modesto	190	11/16/18
Sacramento-Del Paso	228	11/15/18
San Jose	134	11/15/18

TABLE 2: COMPARISON OF PM CONCENTRATIONS AT SELECTED SITES TO HISTORICAL AVERAGES

Average Concentrations at Selected Sites (µg/m³)	$PM_{2.5}$	
	2010-2017	2018
November 1 - 30	16	37
November 8 - 22	15	64

TABLE 3: INCREASE IN PM CONCENTRATIONS AND PERCENTAGES FROM HISTORICAL AVERAGES

2018 Increase from Historical (2010-2017) Average	$PM_{2.5}$	
	Concentration Increase (µg/m³)	Percent Increase (%)
November 1 - 30	21	137
November 8 - 22	49	315

Data Comparison - Camp Fire and Summer Wildfires

Data from the Camp Fire was compared with data collected during the Carr, Mendocino Complex, and Ferguson fires in the summer of 2018 (Table 4). The Camp Fire, with almost 19,000 structures burned, showed characteristics not seen in the other, more traditional wildfires that burned mostly vegetation.

TABLE 4: SELECTED WILDFIRES IN CALIFORNIA IN 2018 FOR DATA COMPARISON

Wildfire	Location (Counties)	Time Frame (ignition-containment)	Acreage Burned (appx)	Structures Destroyed (appx)
Camp Fire	Butte	11/8/18-11/25/18	150,000	18,800
Carr Fire	Shasta, Trinity	7/23/18-8/30/18	230,000	1,600
Mendocino Complex (Ranch and River Fires)	Colusa, Glenn, Lake, Mendocino	7/27/18-9/18/18	460,000	~250
Ferguson Fire	Mariposa	7/13/18-8/19/18	97,000	<10

During the 2018 summer wildfires and the Camp Fire, Chico showed the highest concentrations of $PM_{2.5}$ of the four selected speciation monitoring sites. This is likely due to the fact that Chico was the closest of the speciation monitors to three of the four fires evaluated in this report. In Chico, the $PM_{2.5}$ concentration increased by nine times above the average during the summer wildfires, and almost 100 times above the average during the Camp Fire.

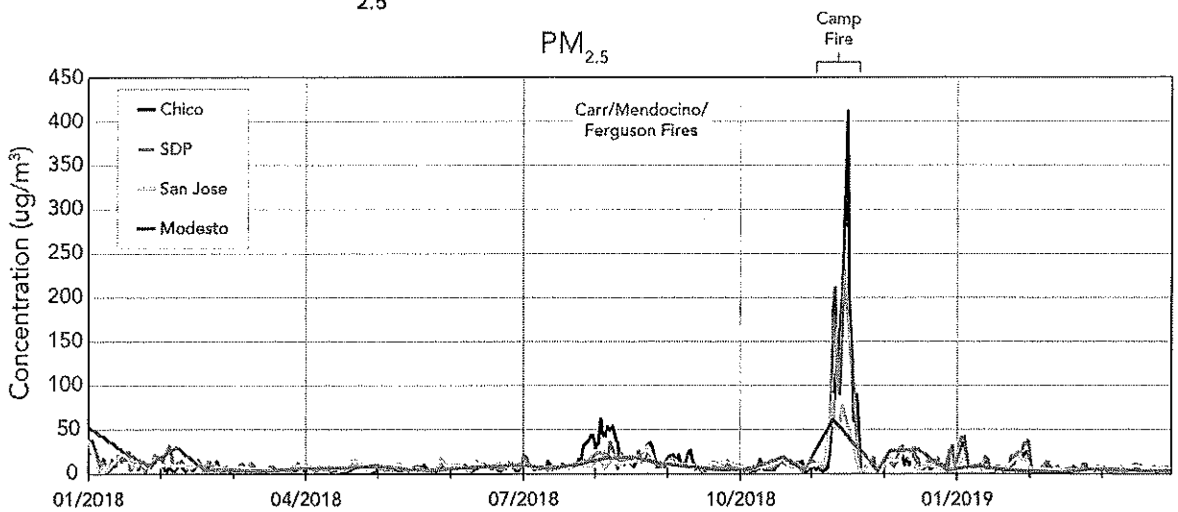
Particulate Matter

Particulate matter is the principal pollutant of concern with wildfire smoke, particularly $PM_{2.5}$ (with diameters of 2.5 micrometers, far smaller than the diameter of a human hair), which can be inhaled into the lungs. $PM_{2.5}$ is a complex mixture of solids and aerosols that can contain a myriad of chemical compounds, including metals, organic and elemental carbon, potassium, organic matter and geologic material, and potentially ammonium nitrate and ammonium sulfate.

During the 2018 summer wildfires and the Camp Fire, Chico showed the highest concentrations of $PM_{2.5}$ of the four selected speciation monitoring sites. In Chico, the $PM_{2.5}$ concentration increased by nine times above the average during the summer wildfires, and almost 100 times above the average during the Camp Fire.

$PM_{2.5}$ contributed by the summer wildfires continued until the end of September 2018. The $PM_{2.5}$contributed by the Camp Fire continued until the end of November 2018. The slightly elevated $PM_{2.5}$ seen in December 2018 and early January 2019 could be from lingering smoke and ash from the Camp Fire, the high PM levels typical of that time of year (due to woodstove use), or both.

FIGURE 4: COMPARISONS OF $PM_{2.5}$ CONCENTRATIONS



Metals

Metal concentrations were higher during the Camp Fire, particularly lead (Pb) and zinc (Zn), which increased dramatically (Figure 5). Other metals including calcium (Ca), iron (Fe), and manganese (Mn) were elevated during all the wildfires studied. The metal contributions to $PM_{2.5}$ speciation data from the Camp Fire continued until the end of November 2018.

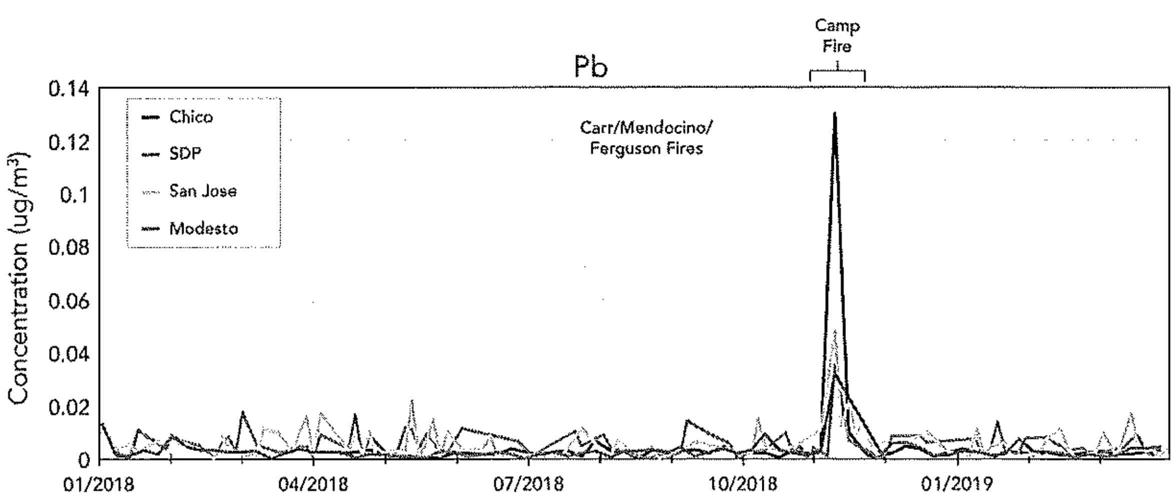
Among the key findings:

- The San Jose monitoring site showed the highest concentrations of both calcium and iron during the Camp Fire; concentrations of the two metals increased to about twice the levels seen in the days prior to the event.
- Manganese and lead were highest at the Chico monitoring site; concentrations increased by more than four times and 50 times above the average, respectively.
- Zinc was highest at the Modesto site, which already had slightly higher zinc concentrations; concentrations increased by more than 20 times the average at Modesto and 33 times the average at Chico.

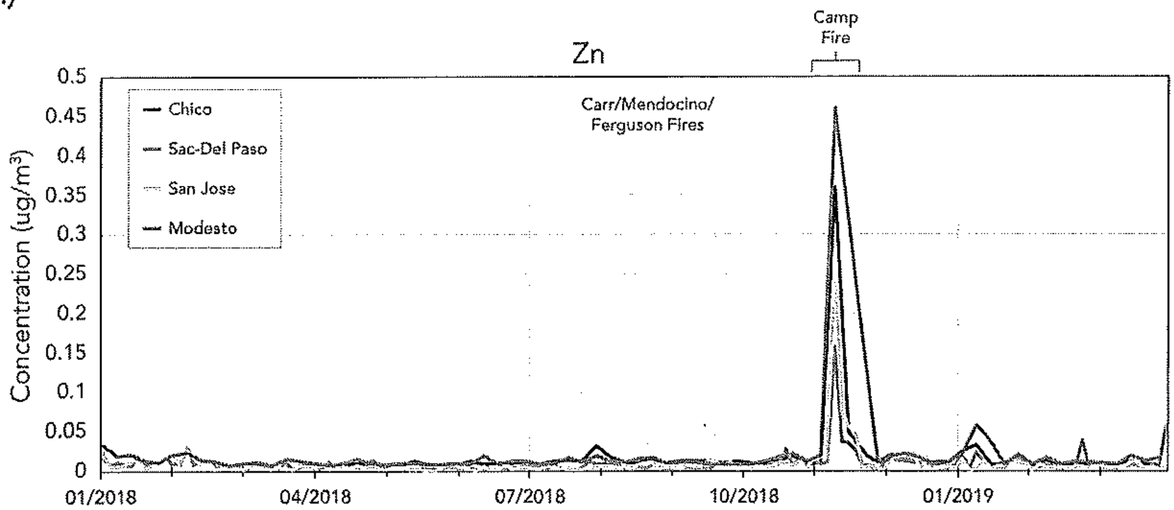
Potential effects of these elevated levels are discussed in the Health Impacts section of this report.

FIGURE 5: CONCENTRATION OF METALS IN $PM_{2.5}$ BETWEEN JANUARY 2018 AND MARCH 2019

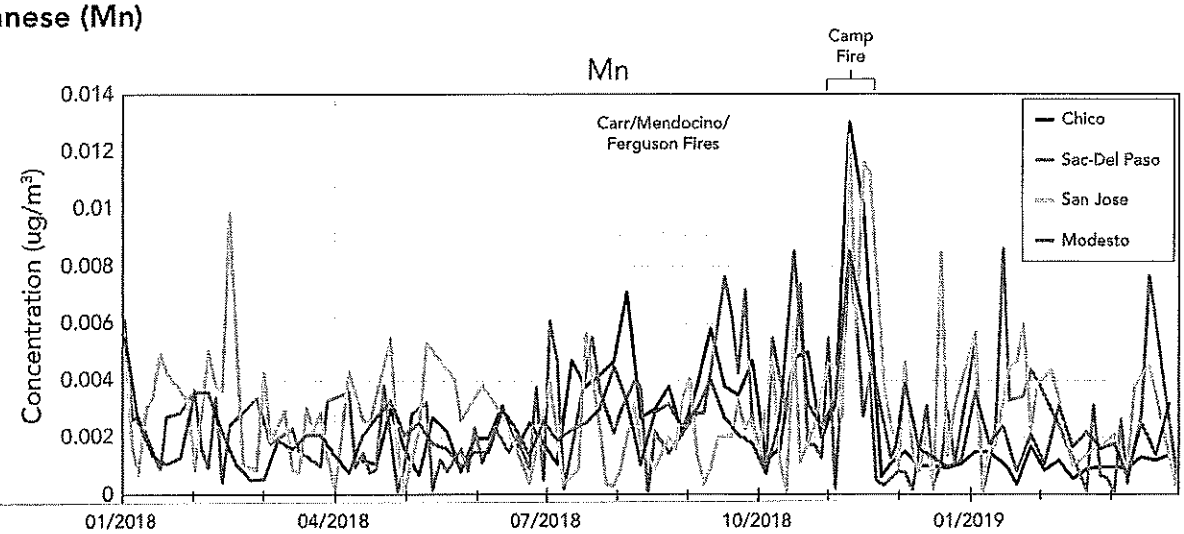
Lead (Pb)



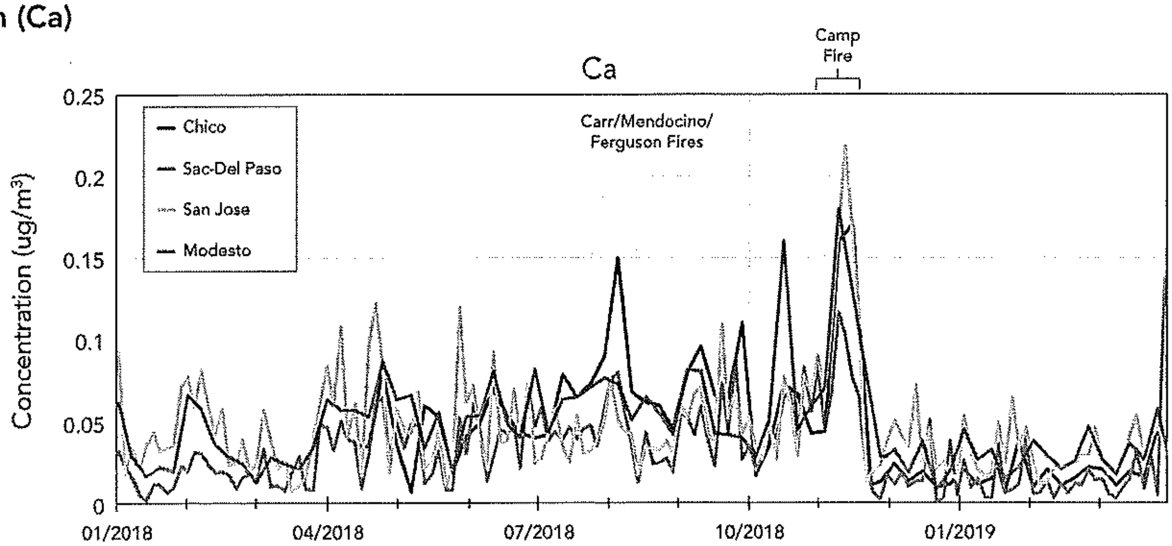
Zinc (Zn)



Manganese (Mn)



Calcium (Ca)

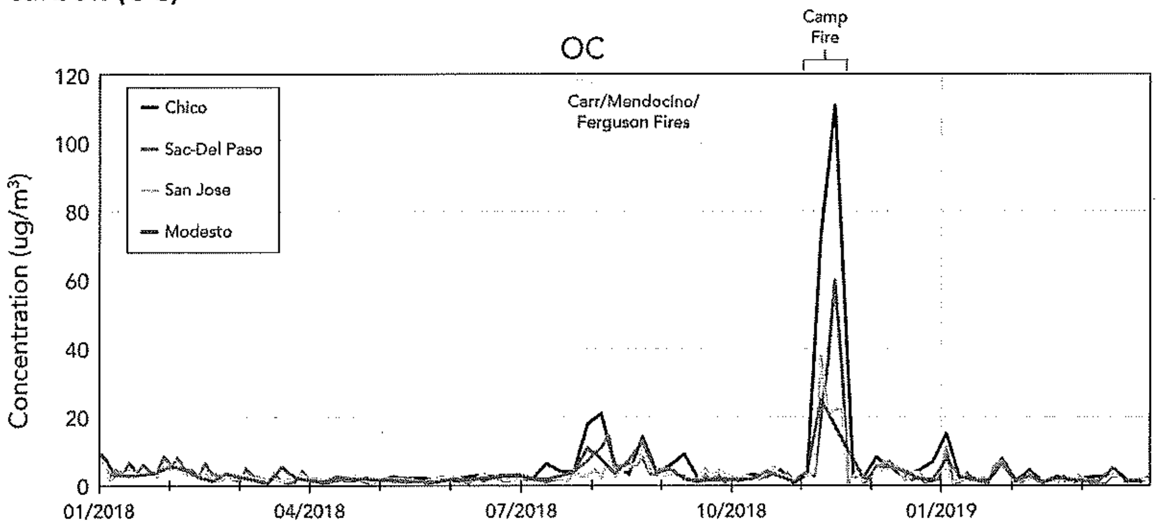


Chemical Species

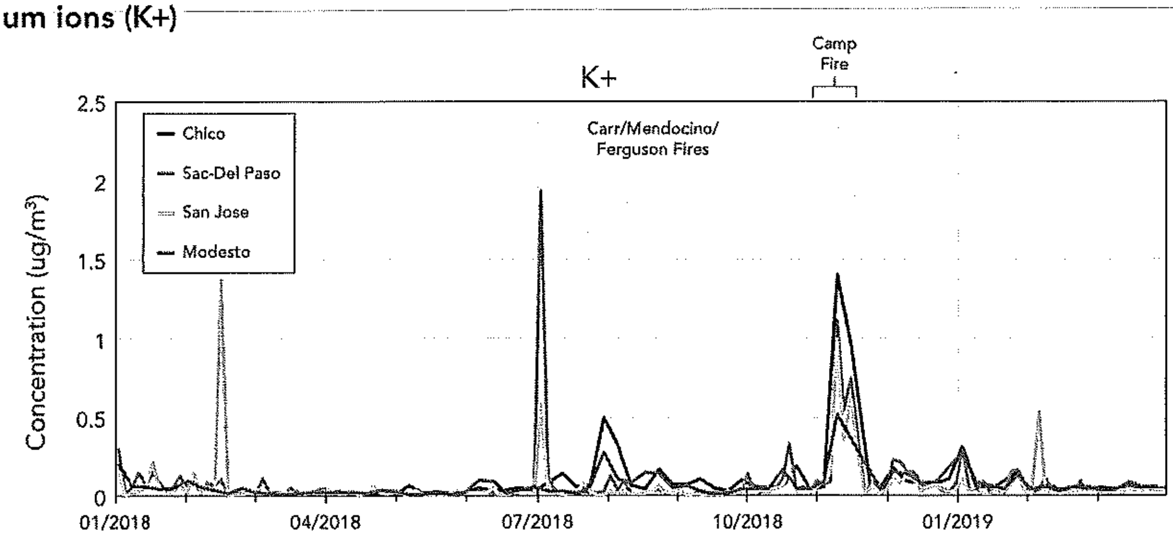
Organic carbon (OC) and potassium ions (K^+) are known chemical tracers for biomass burning and can help track the influence and intensity of wildfire smoke. All four selected sites showed elevated concentrations of these species during both the summer wildfires and the Camp Fire, with concentrations during the Camp Fire much higher than during the summer wildfires (Figure 6). The Chico site recorded concentrations of organic carbon and potassium ions of about 36 times and 24 times higher than normal, respectively. The increased concentrations of organic carbon and potassium ions continued until the end of November 2018, when the Camp Fire was fully contained.

FIGURE 6: $PM_{2.5}$ ORGANIC CARBON AND POTASSIUM IONS CONCENTRATIONS BETWEEN JANUARY 2018 AND MARCH 2019

Organic carbon (OC)



Potassium ions (K+)



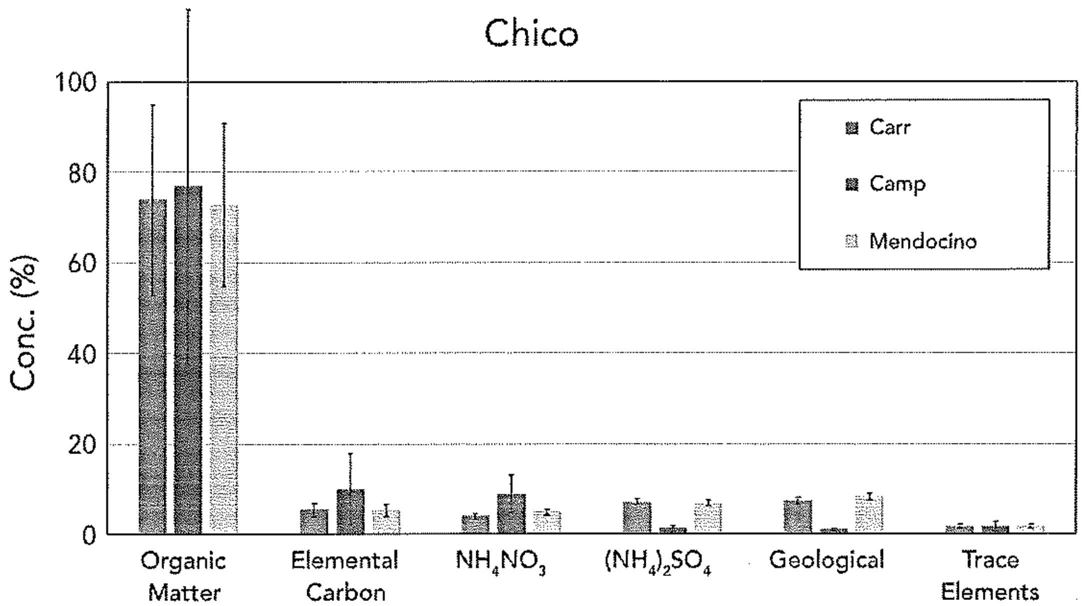
Other chemical species collected from samples taken during the Camp Fire and the summer wildfires were also compared for the selected monitoring sites. In general, organic matter contributes far less than ammonium sulfate and ammonium nitrate to ambient $PM_{2.5}$ concentrations in California.[4] The analysis of the Camp Fire data, however, as well as that from the summer wildfires, showed the

4 CARB, 2015 ARB Review of San Joaquin Valley $PM_{2.5}$ State Implementation Plan, Appendix A. Weight of Evidence Analysis, page A-16, *arb.ca.gov/resources/documents/2015-and-2008-san-joaquin-valley-pm25-attainment-plans*, last accessed 7/20/20.

majority of $PM_{2.5}$ was composed of organic matter, with lesser contributions from elemental carbon, ammonium nitrate, ammonium sulfate, geologic materials, and trace elements. The differences between the wildfires, however, were not as clearly seen as in the figures above (Figures 4 through 6). These difference could be due to traditional seasonal patterns in chemical formations, winter versus summer, for example, or even monitor sampling schedule differences (Figure 7). The data is presented here, but the differences are not considered significant enough to draw any conclusions regarding the differences between the Camp Fire and the summer wildfires.

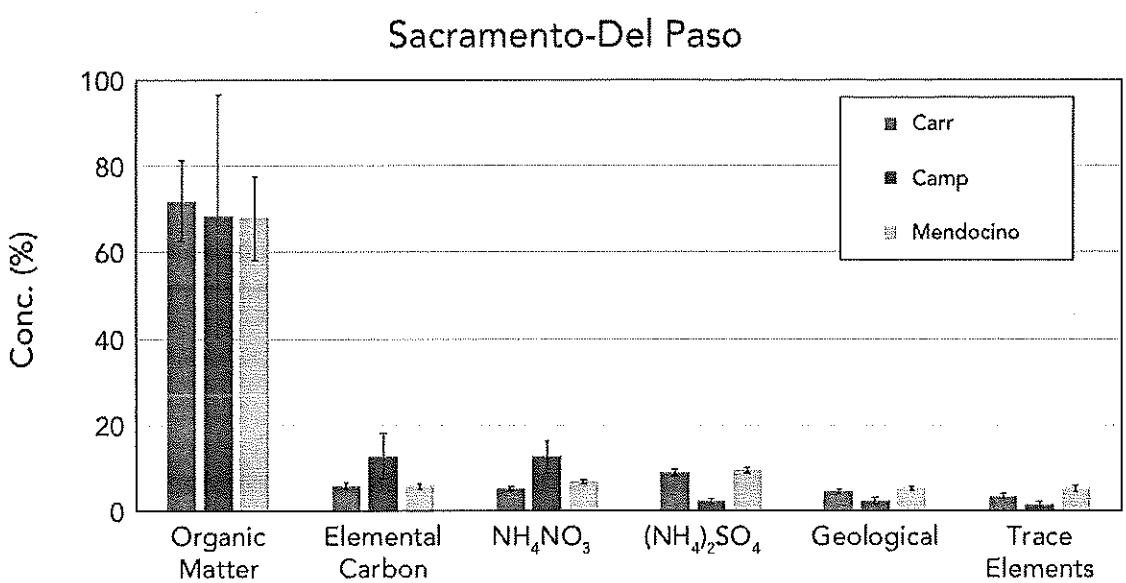
FIGURE 7: COMPARISONS OF $PM_{2.5}$ COMPOSITIONS DURING WILDFIRES IN 2018 (PERCENT OF TOTAL $PM_{2.5}$ COMPOSITIONS ± STANDARD ERROR)

Chico (sampling days: Carr: 7 ; Camp: 3; Mendocino: 9)

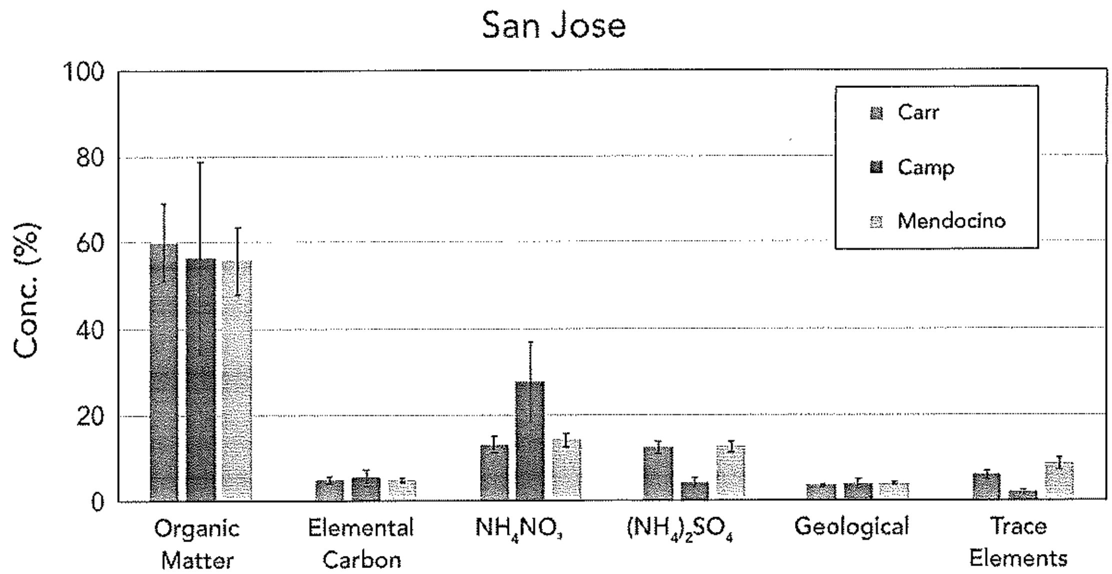


At Chico, the $PM_{2.5}$ components on November 10 (17.7 hour sampling time) & 16 (13.0 hour sampling time) were included.

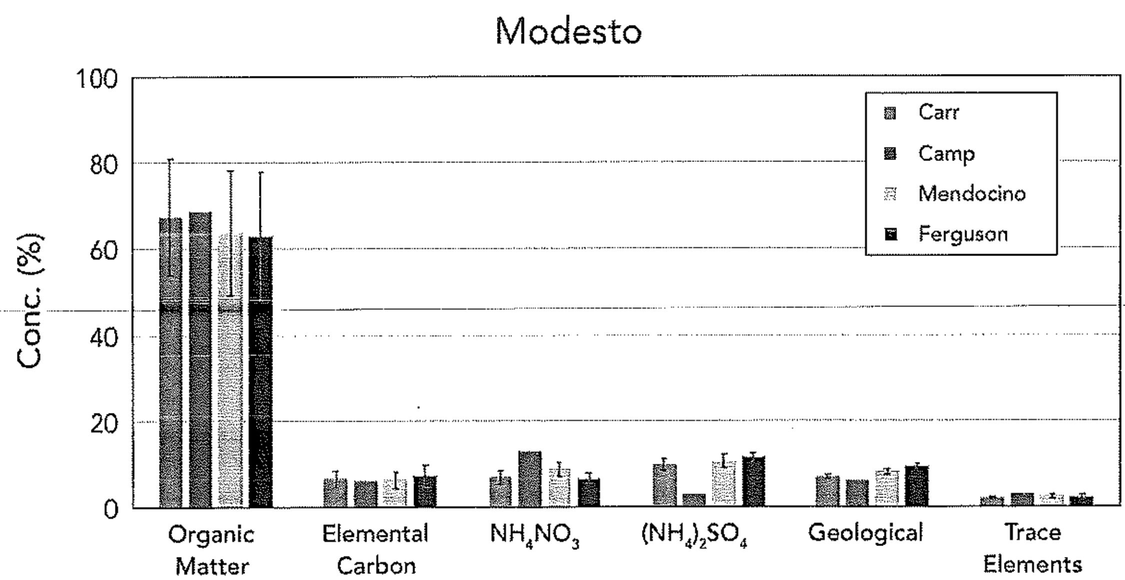
Sacramento-Del Paso (sampling days: Carr: 13; Camp: 6; Mendocino: 18)



San Jose (sampling days: Carr: 13; Camp: 6; Mendocino: 18)



Modesto (sampling days: Carr: 7; Camp: 1; Mendocino: 9; Ferguson: 3)



Health Impacts

As previously noted, wildfires produce complex mixtures of potentially harmful air pollutants, including particulate matter (PM) which is comprised of increased levels of metals, toxic air contaminants, and other chemical compounds. Smoke from any type of fire (e.g. forest, brush, crop, structure, tires, waste, or wood burning) is a complex mixture of tiny solid, liquid, and gas particles and chemicals produced by incomplete burning of carbon-containing materials. More specifically, smoke from structural fires, such as residential, commercial, and industrial fires, contains more than a hundred dangerous toxins and poisonous gases, including carbon monoxide and hydrogen cyanide. Carcinogenic compounds from the burning of household materials within structures, such as benzo(a) pyrene, toxic dioxin compounds, and benzene, have been reported.[5] $PM_{2.5}$ can be inhaled into the deepest recesses of the lungs and the association between $PM_{2.5}$ and heart and lung effects is well documented in scientific literature.

Wildfire Smoke

Adverse health effects from exposure to wildfire smoke include increases in severity of respiratory problems, such as asthma, increases in emergency department visits for heart attacks and strokes, and increased risk of premature death.[6] The U.S. EPA has estimated that short-term (days to weeks) exposure to wildfire-related $PM_{2.5}$ results in between 1,500 and 2,500 deaths annually.[7] During the 2007 San Diego wildfires, emergency department visits increased by 34 percent for respiratory conditions in general and by 112 percent for asthma in particular, compared to pre-wildfire periods.[8] During the 2003 heavy wildfire smoke conditions in Southern California, there was a 34 percent increase in asthma hospital admissions.[9]

There is limited information on the potential health impacts due to long-term repeated exposure to wildfire smoke over multiple seasons.[10] Since wildfire smoke contains $PM_{2.5}$ and PM_{10}, the long-term health impacts from wildfire smoke are expected to be in line with the effects from those pollutants.[11]

Smoke from Structural Fires

Since wildfires, and the Camp Fire in particular, can also burn structures, such as homes, associated buildings, and vehicles occupational studies can shed light on the long-term health impacts. For example, in a long-term study of U.S. firefighters, investigators reported an excess of lung, digestive, and urinary cancers, and a rare cancer of the lung - mesothelioma (associated with asbestos exposure). Recently, the investigators reported excess leukemia and excess chronic obstructive pulmonary disease (COPD)-related deaths associated with the amount of time spent at fires.[12] Some of these long-term health impacts, such as heart disease, reduced lung function, and lung cancer, are

5 Blais et al., Fire Technology 56:489-514, 2020; Van der Veen and Boer, Chemosphere 88:1119-1153, 2012.

6 Black et al., Environ Toxicol Pharmacol 55: 186–195, 2017.

7 Fann et al., (2018). The health impacts and economic value of wildland fire episodes in the US: 2008–2012. Science of the total environment, 610, 802-809.

8 Hutchinson et al., PLoS Med. 15(7): e1002601, 2018.

9 Delfino et al., Occup. Environ. Med. 66:189–97, 2009.

10 U.S. EPA (2019). Wildfire Smoke: A Guide for Public Health Officials. Officials, first published in 2002, Revised 2019. EPA-452/R-19-901 August 2029. Available at: *airnow.gov/publications/wildfire-smoke-guide/wildfire-smoke-a-guide-for-public-health-officials*

11 Booze et al., Journal of Occupational and Environmental Hygiene 1: 296–305, 2004; Coker et. al., J Occup Environ Med. 61(3): e91–e94, 2019; Smith et. al., J Am Heart Assoc. 18; 7(18): e009446, 2018. Finlay et.al., PLoS Curr. 4:e4f959951cce2c, 2012.

12 Daniels et al., Occup Envon Med 71:388-397, 2014; Pinkerton et. al., Occup Environ Med 77:84-93, 2020.

impacts also seen in populations exposed to $PM_{2.5}$ and PM_{10}.[13,14]

Among the many compounds present in structures are flame retardants, commonly used in consumer products, such as furniture, textiles, building materials, and electronics. One chemical group, called phosphorus flame retardants, has shown negative hormonal effects in laboratory tests. Further, these compounds are associated with increased hyperactivity in children.[15] Given these many potential sources of these compounds, and considering the byproducts of the combustion of wood, plastics, and other chemicals released from burning structures, it is clear that the tiny particles, gases and chemicals in smoke generated from structure fires are hazardous to human health.

Health Concerns Regarding Wildfire Ash

Wildfire ash is made up of both large and small particles (dust, dirt, and soot) left behind after a fire. Ash deposited on surfaces indoors and outdoors can be inhaled if it becomes airborne during clean up, and exposure to ash and other products of the fire can irritate the eyes, nose, or skin and cause coughing and other health effects.[16,17] Ash inhaled deeply into lungs may trigger an asthma attack or make it difficult to breathe for those with other respiratory diseases. In general, ash from burned structures is considered more hazardous than forest ash. Because of these ongoing concerns regarding the health effects associated with ash exposures, additional research is needed to assess health risks associated with cleanup efforts, as well as resuspension of ash deposited indoors.[18,19]

Specific Pollutants

Fine Particulate Matter ($PM_{2.5}$)

Long-term exposure to fine particulate matter has been linked to a wide range of human health effects, such as respiratory and heart-related illnesses and hospitalizations, adverse brain effects, depression, memory loss, learning disorders, reduced lung function development in children, and premature death. With respect to wildfire $PM_{2.5}$ and smoke, several studies have shown strong associations between exposure and increasing severity of asthma, other respiratory disease, such as COPD, and an increase in inflammation or infections, including bronchitis and pneumonia, emergency department visits, and hospital admissions.[20,21] Available studies link short-term exposures to $PM_{2.5}$ with increased risk of heart disease and death. The short-term spikes in particulate matter from the Camp Fire and other wildfires in California are similar to some of the pollution levels seen in other countries such as China and India that experience high levels of

13 U.S. EPA. (2019). Integrated Science Assessment for Particulate Matter. Research Triangle Park, NC. Center for Public Health and Environmental Assessment, Office of Research and Development. U.S. EPA. EPA/600/R-19/188 December 2019.

14 Adetona et al., Inhal Toxicol 28:3, 95-1, 2016.

15 Xu et al., Toxicology Res. 6:63-72, 2017; Dishaw et. al., Current Opinion in Pharm. 19:125-133, 2014; Castorina et al., Chemosphere 189:574-580, 2017.

16 Kjellstrom et al., Air and Water Pollution: Burden and Strategies for Control. In: Disease Control Priorities in Developing Countries: Chapter 43, 2nd edition. Jamison DT, Breman JG, Measham AR, et al., editors. Washington (DC): The International Bank for Reconstruction and Development / The World Bank; New York: Oxford University Press; 2006.;

17 Gonino et. al., Sci Total Environ. 665:226-234, 2019; Burton et. al. Plos One 11:e0153372, 2016; Alexakis et al., Environ. Research 183:109153, 2020; Re et. al., Ecology and Environ. Safety 194:110361, 2020.

18 Burton et. al. Plos One 11:e0153372, 2016.

19 Stein et al., Environ Toxicol Chem 31(11):2625-38, 2012.

20 Youssouf et al., Int J. Environ Res Public Health 11:11772-11804, 2014; Liu et al., Environ. Res. 136:12-132, 2015; Reid et al., Environ. Health Perspectives. 124:1334-1343, 2016.

21 U.S. EPA. (2019). Integrated Science Assessment for Particulate Matter. Research Triangle Park, NC. Center for Public Health and Environmental Assessment, Office of Research and Development. U.S. EPA. EPA/600/R-19/188 December 2019.

industrial and mobile source pollution. Both countries show subsequent increases in respiratory diseases and infections, and chronic heart and lung disease, resulting in increased medical visits, hospital admissions, and risk of death.[22,23,24]

High levels of particulate matter in wildfire smoke posed serious health risks to residents of Butte County, as well as other areas affected by the Camp Fire. On some days, for example, the $PM_{2.5}$ levels in Chico far exceeded the national 24-hour standard of 35 micrograms per cubic meter ($\mu g/m^3$). Inhaling smoke from wildfires for a short time can acutely increase the severity of asthma and COPD.[25] Over the entirety of the Camp Fire period, the average concentration of $PM_{2.5}$ at the sites shown in Figure 2 was 64 $\mu g/m^3$, a level almost twice the 24-hour standard, ranging from 20 to 144 $\mu g/m^3$. Chico was especially hard hit with the highest period average of 144 $\mu g/m^3$ and a maximum high daily-average of 412 $\mu g/m^3$, almost 12 times the 24-hour standard.[26]

While more research is needed to specifically study health impacts from wildfire smoke, these high levels of particle pollution certainly had short-term effects on individuals with respiratory and heart illnesses and likely also contributed to long-term health effects.

Metals, Organic Carbon, Ammonium Nitrate, and Ammonium Sulfate

Particulate matter from wildfire is a complex mixture that typically contains elements that are highly toxic. In the following sections, information on potential health effects is provided for the metals, organic carbon, ammonium nitrate, and ammonium sulfate monitored in the Camp Fire as well as during the Carr, Mendocino, and Ferguson fires.

Lead (Pb)

CARB has led efforts to reduce lead exposures, including cleaner fuels regulations, and identified lead as a "toxic air contaminant" in 1997.[27] The EPA set the National Ambient Air Quality Standards (NAAQS) for lead at 0.15 $\mu g/m^3$, using a 3- month average concentration. The NAAQS for lead is set by calculating the monthly average of the lead concentrations at each monitor and averaging that value with the prior two months' average concentrations. The NAAQS standard is based on health effects that include adverse brain development in children and high blood pressure, and reproductive effects, and cancer in adults. Infants and young children are especially sensitive to low levels of lead that are known to cause behavioral changes and learning deficits.

During the Camp Fire, for a period of 17 hours on November 10th, the ambient lead concentration was elevated to an average of 0.13 $\mu g/m^3$. Levels of $PM_{2.5}$ recorded by the parallel filter sampler climbed dramatically after the shutdown of the over-loaded speciation sampler in 17 hours. Estimating the lead levels from the 17 hours of sampling to a 24-hour sampling time, the potential daily lead level would be approximately 0.17 $\mu g/m^3$ for the $PM_{2.5}$ sample. While this higher level of lead was only seen for one day and therefore cannot be compared to the national 3-month average standard, the peak level of lead for the Camp Fire is concerning since lead is considered a toxic

22 Xu et al., PLoS One11(4): e0153099, 2016.

23 WHO (2006). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Summary of risk assessment. WHO WHO/SDE/PHE/OEH/06.02 200. 20. Avenue Appia, 1211 Geneva 27, Switzerland. Global update 2005. Available at: *apps.who.int/iris/bitstream/handle/10665/69477/WHO_SDE_PHE_OEH_06.02_eng.pdf?sequence=1*

24 Rajak et al., Int J Environ Health Res. 1-25, 2019.

25 Black et al., Environ Toxicol Pharmacol 55: 186–195, 2017; Liu et al., Environ. Res. 136:12-132, 2015.

26 U.S. EPA. (2020). Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards. Research Triangle Park, NC. Office of Air Quality Planning and Standards, Health and Environmental Impacts Division. U.S. EPA. EPA-452/R-20-002 January 2020. Available at: *epa.gov/sites/production/files/2020-01/documents/final_policy_assessment_for_the_review_of_the_pm_naaqs_01-2020.pdf*

27 California Air Resources Board (CARB) Lead & Health, *arb.ca.gov/resources/lead-and-health*; World Health Organization (WHO) Lead Poisoning and Health, August 2019.; U.S. EPA. (2014). Policy Assessment for the Review of the Lead National Ambient Air Quality Standards. Research Triangle Park, NC. Office of Air Quality Planning and Standards, Health and Environmental Impacts Division. U.S. EPA. EPA-452/R-14-001 May 2014. Available at: *epa.gov/ttn/naaqs/standards/pb/data/140501_pa_pb_fin.pdf*

air contaminant that accumulates in human bodies, especially children, and any increased levels of exposure could be harmful.[28]

Manganese (Mn)

The short-term exposure to manganese from the wildfires is unlikely to pose health risks to the residents of Chico or those in other areas impacted by the wildfire smoke. During the Camp Fire, the ambient manganese concentration in Chico, the highest site, was 0.013 μg/m^3, lower than U.S. EPA reference concentrations of 0.05 μg/m^3 or the California Office of Environmental Health Hazard Assessment (OEHHA) 8hour manganese reference exposure level value of 0.17 μg/m^3.[29,30]

Zinc (Zn)

Due to the lack of information on the health impacts of zinc, the health effects of short-term exposure during the Camp Fire could not be determined. Ambient zinc concentrations increased to 0.36 and 0.46 μg/m^3 in Chico and Modesto, respectively. The U.S. EPA does not set zinc reference concentrations for inhalation exposure and sufficient data and literature on exposure to zinc compounds was unavailable.[31]

Organic Carbon (OC) and Associated Organic Compounds

The highest organic carbon concentrations during the Camp Fire were reported in the Chico area. The speciation sampler at Chico detected peak concentrations of 111 μg/m^3, almost five times the peak concentrations (21 μg/m^3) recorded at the same site during the Carr, Mendocino, or Ferguson fires. The average organic carbon concentration at Chico during the Camp fire (92 μg/m^3 for two days of sampling) was approximately ten times higher than what was recorded during the summer wildfires.

The organic carbon component of $PM_{2.5}$ from wildfires and biomass combustion accounts for approximately 50 to 67 percent of the PM mass, is a complex chemical mixture, and contains numerous toxic compounds. One example of a toxic class of compounds present in organic carbon in wildfires is polycyclic aromatic hydrocarbons (PAHs).[32] Many PAHs, or their chemical derivatives, can cause DNA damage and cancer.[33] These compounds can also cause inflammation that can damage the lungs and other organs, such as the heart.[34] Additional toxic compounds present in organic carbon from wildfires, especially from burning of structures, include plasticizers, flame retardants, metals, and aldehydes.[35] To our knowledge, the levels of PAHs and these additional toxic compounds were not measured during the Camp Fire. The level of organic carbon measured in the Camp Fire can potentially result in increased health risks since organic carbon is a principal

28 U.S. EPA (2013) Integrated Science Assessment (ISA) for Lead. Research Triangle Park, NC. National Center for Environmental Assessment-RTP Division, Office of Research and Development, U.S. EPA/600/R-10/075F June 2013, Errata Sheet created 5/12/2014. Available at: *cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=255721*

29 U.S. EPA. (2012). Inhalation Health Effect Reference Values (IHERV) for Manganese (CASRN 7439-96-5 – Manganese) and Compounds (CASRN 1344-43-0; 1317-35-7; and 1129-60-5). Research Triangle Park, NC. Office of Research and Development, National Center for Environmental Assessment. U.S. EPA. EPA/600/R-12/047F5. December 2012. Available at: *nepis.epa.gov/Exe/ZyPDF.cgi/P100KJKC.PDF?Dockey=P100KJKC.PDF*

30 CalEPA OEHHA (2014). Manganese & Manganese Compounds (CAS Number 7439-96-5). Technical Support Document for Noncancer RELs, Appendix D1. CalEPA OEHHA. December 2008 Updated July 2014. Available at: *oehha.ca.gov/media/downloads/crnr/appendixd1final.pdf*

31 U.S. EPA. (2005). Toxicological review of Zn and compounds (CAS No. 7440-66-6) In Support of Summary Information on the Integrated Risk Information System (IRIS). Washington D.C. National Center for Environmental Assessment. U.S. EPA. E. PA/635/R-05/002 July 2005. Available at: *cfpub.epa.gov/ncea/iris/iris_documents/documents/toxreviews/0426tr.pdf*

32 Navarro et al., J. Occup. Environ. Hygiene 16(11): 735-744, 2019.

33 Kim et al. Environ. Health Perspectives. 017011-1-14, 2018; World Health Organization (WHO). IARC Monographs on the Evaluation of Carcinogenic Risk to Humans. Volume 95, 2010; Agency for Toxic Substances and Disease Registry (ATSDR) Toxicity of Polycyclic Aromatic Hydrocarbons (PAHs), 2009.

34 Kim et al. Environ. Health Perspectives. 017011-1-14, 2018 Liu et al., Environ. Res. 136:120-132, 2015.

35 Hand et al. Adv. Meteorology article ID 367674 doi 10.1155/2013/367674. 2013; Vincente et al. Environ. Sci. 53:122-131, 2017; Simoneit, et al., Environ. Sci. Technol. 39:6961-6970, 2005.

component of $PM_{2.5}$ and contains numerous toxic compounds that can cause potential acute lung and heart damage and chronic health effects, such as cancer.

Ammonium Nitrate and Ammonium Sulfate

Adverse health effects evaluated in various studies for short-term nitrate and sulfate exposure include reduced lung performance and function.[36] Ammonium nitrate and ammonium sulfate are not generally major components of wildfire smoke. The levels of both during the peak days of the Camp Fire appear to be well below the levels that would cause adverse health effects from short-term exposure.

Health Effects Summary

The Camp Fire had very unique attributes compared to other, more vegetation-based wildfires, including a very high level of structural burning that resulted in spikes in toxic emissions that added to the burden of illness. Based on published studies, children and the elderly would have been the most susceptible to these effects.[37] Growing epidemiological evidence suggests that exposure to wildfire PM has been associated with a range of adverse human health effects, especially heart disease and premature death.

During the Camp Fire, the complex mixture of wildfire smoke and the materials burned, including structures and their contents (such as motor vehicles), make exact estimations of health effects challenging. In order to better understand the health effects of the Camp Fire and future wildfire incidents, additional research is needed.

Areas where CARB is engaged in, or recommending, additional research on this subject include both short- and long-term health effects of wildfire smoke, as well as the effects of certain toxic components of smoke, as outlined in the next section of this report.

36 Kleinman et al., Environ. Res. 21:313-26, 1980.; Utell et al., J. Appl Physiology 46:189-196, 1979.; *arb.ca.gov/resources/sulfate-and-health.*

37 Liu et al., Environ. Res. 136:12-132, 2015; Reid et al., Environ. Health Perspectives. 124:1334-1343, 2016; Wettstein, et al., J. Am. Heart Assoc. 7(8): e007492, 2018; McCoy et al., Applied Econ. Letters, 2020.

Going Forward

Health Effects Research

Further research is needed on the health impacts of wildfire smoke, both from traditional wildfires that burn primarily vegetation and from those that burn large numbers of structures, cars, and trucks. The following topics will require further investigation.

Complex mixtures of smoke

Future measurements and research should study more toxic components in the complex mixture of wildfire smoke and their combined effects to provide a clear understanding of their potential for acute and chronic health outcomes to the public. For example, the PAHs and persistent chemicals, such as flame retardant compounds used in building materials, furniture, and vehicles, when combusted could produce additional toxic compounds. Certain flame retardant chemicals, especially phosphorus flame retardants (PFRs), cause DNA damage. These compounds are very similar in chemical structure to organophosphate pesticides that are highly toxic and cause nerve damage. However, the toxicity of combusted PFRs is unknown.

High short-term exposures

Most health effects of wildfire smoke are based on short-term exposure (i.e. over a few days to weeks). There have been consistent findings that exposure to wildfire smoke increases the severity of lung diseases, such as asthma and COPD. Smoke exposure from wildfires has also been associated with an increase in emergency department visits for heart disease and stroke.[38] Future studies should provide deeper insights into oxidative stress damage during wildfires and report changes in respiratory symptoms and healthcare-seeking behavior after wildfires. The chemical and physical components of wildfire smoke that impact lung and heart health should be considered and measurements of ultrafine PM and their association with health effects would be prudent to study. CARB-funded investigators are currently studying the associations between short-term exposure to wildfire $PM_{2.5}$ and loss of work days and increases in asthma attacks.

Repeated or long-term exposure to wildfires

It is equally important to study the health effects people may experience from cumulative exposures, multi-day exposures, or multiple consecutive fire seasons. Long-term exposure to wildfires that burn a mixture of natural and synthetic materials may contribute to an elevated overall lifetime risk for heart disease, lung disease, and cancer. Future studies concerning these health effects on the general population and their association with specific chemical and physical components of wildfire smoke should be considered, along with effects on the brain (nervous system), and leukemia and other cancers (as reported among firefighters). Also, long-term effects on children's health including asthma should be considered. CARB is funding a long-term health effects study in which primates were naturally exposed during infancy to wildfires and continue to be monitored throughout adulthood.

Chemical-biological analysis of smoke

The toxic compounds of wildfire smoke can be analyzed chemically, and their toxicity measured using biological analysis. The chemical analyses in combination with biological analyses could help develop a screening tool for evaluating potential short-term and long-term health effects

38 Reid et al., Environ. Health Perspectives. 124:1334-1343, 2016; Wettstein, et al., J. Am. Heart Assoc. 7(8): e007492, 2018

and improve understanding of the biological pathways for toxic constituents of smoke to harm to the lungs, heart and other organs. This approach would provide important information to assess exposure, toxicity, and rapid analyses of the potential health hazard risks from wildfire smoke. Priority should be given to research on exposure and health risks to vulnerable and highly impacted communities.

Modeling

Modeling the transport and dispersion of smoke and toxic emissions from burning structures and motor vehicles is a useful tool for estimating the impact of the Camp Fire on regional air quality and exposure, and can help fill in the spatial gaps between measurements in the surface monitoring network. Estimating emissions from wildfires, and the chemical and physical characteristics of those emissions, is inherently uncertain since the fire itself precludes direct measurement of the emissions. To account for some of this uncertainty, CARB's modeling efforts will focus on utilizing multiple modeling platforms, emissions estimates, and plume rise calculations and will evaluate the ability of the modeling systems to capture the magnitude and spatial/temporal variations observed in the surface monitoring network. When available and applicable, CARB staff will also compare modeling output to satellite products and community based sensor networks.

Monitoring

Over the next couple of years, CARB plans to expand its air quality monitoring efforts during select wildfire events to better understand the air quality impacts. The data collected will help with exposure assessments and improve overall messaging to the public. CARB's air monitoring efforts will be determined by the wildfire impacts and staff's ability to collect air quality information at existing monitoring sites (see Appendix C). CARB is proposing one to two sampling events per year that cover one or potentially a combination of wildfire scenarios based on recent wildfire history. Scenarios include northern foothill community fires that threaten structures and have smoke impacts to local, Sacramento and San Joaquin Valley, and Bay Area communities; coastal and Valley fires that threaten structures and impact Central Valley and Bay Area communities; and, southern mountain and canyon community fires threatening structures that impact desert areas and the Los Angeles and San Diego basins.

Although each scenario can be different, the response will be targeted using existing air monitoring stations when available and in proximity to the wildfire impacts, and deploying portable samplers. Air monitoring stations in direct line of wildfire impacts may have their instrument sampling frequencies modified to accommodate particulate matter loading (e.g. from 24 hours to 8 hour sampling events) in order to capture quality data. In areas where air monitoring stations are not located and public impacts are projected, portable samplers will be deployed to capture particulate matter and some toxic air contaminants. Sampling durations will be set to appropriately capture quality data. Deployments will be conducted in parallel with any California Office of Emergency Services (CalOES) "Mission Task" that requests environmental beta-attenuation mass (EBAM) monitor deployments for emergency Air Quality Index (AQI) determinations. All wildfire monitoring and laboratory activities will be based on available resources and every attempt will be made to minimize turn-around times on data reporting.

Numerous nonregulatory, low-cost sensors were in operation throughout Northern California during the Camp Fire. These sensors were deployed by schools, businesses, and individuals and helped monitor immediate smoke impacts. U.S. EPA has begun a project to incorporate these sensors onto its AirNow website in a pilot program launched in August 2020 and incorporated into EPA's current mapping software.

Appendix A: Resources

Additional information regarding wildfires, monitoring, air quality, and health risks can be found in the following documents:

California Air Resources Board

Wildfires

arb.ca.gov/our-work/programs/wildfires

Incident Air Monitoring

arb.ca.gov/our-work/programs/incident-air-monitoring

Air Quality and Meteorological Information System

arb.ca.gov/aqmis2/aqmis2.php

Protecting Yourself from Wildfire Smoke

arb.ca.gov/protecting-yourself-wildfire-smoke

California Department of Public Health

Wildfire Smoke: Considerations for California's Public Health Officials (CDPH 2019)

cdph.ca.gov/Programs/EPO/CDPH%20Document%20Library/Wildfire%20Smoke%20Considerations%20for%20California's%20Public%20Health%20Officials%20(August%202019)_508.pdf

U.S. Environmental Protection Agency

AirNow – Fire Information

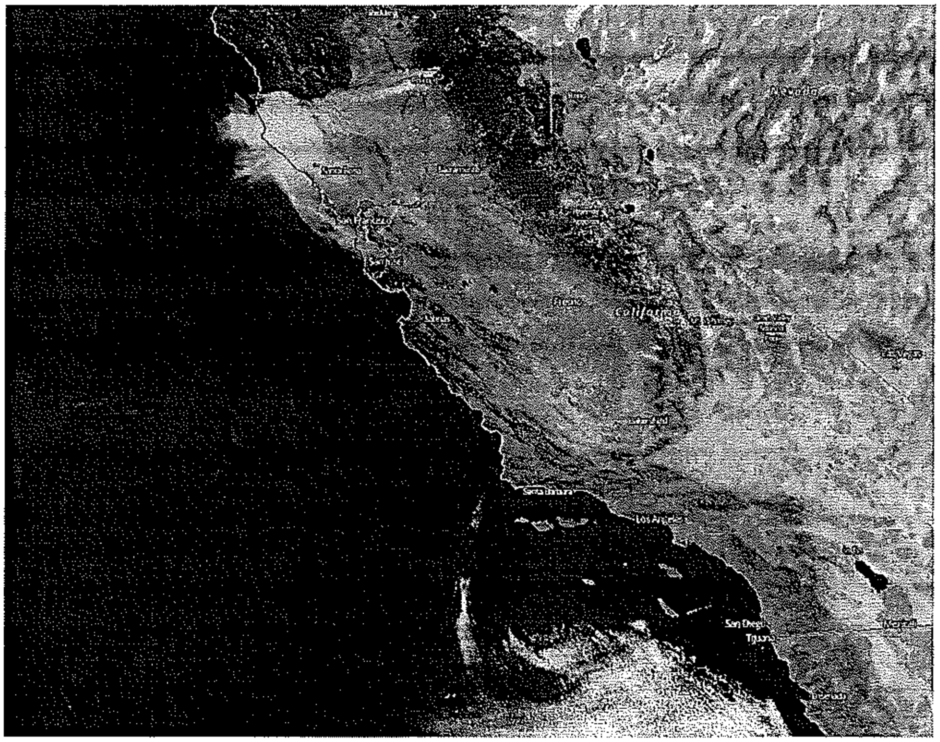
airnow.gov/fires/

Wildfire Smoke A guide for Public Health Officials (U.S. EPA 2019)

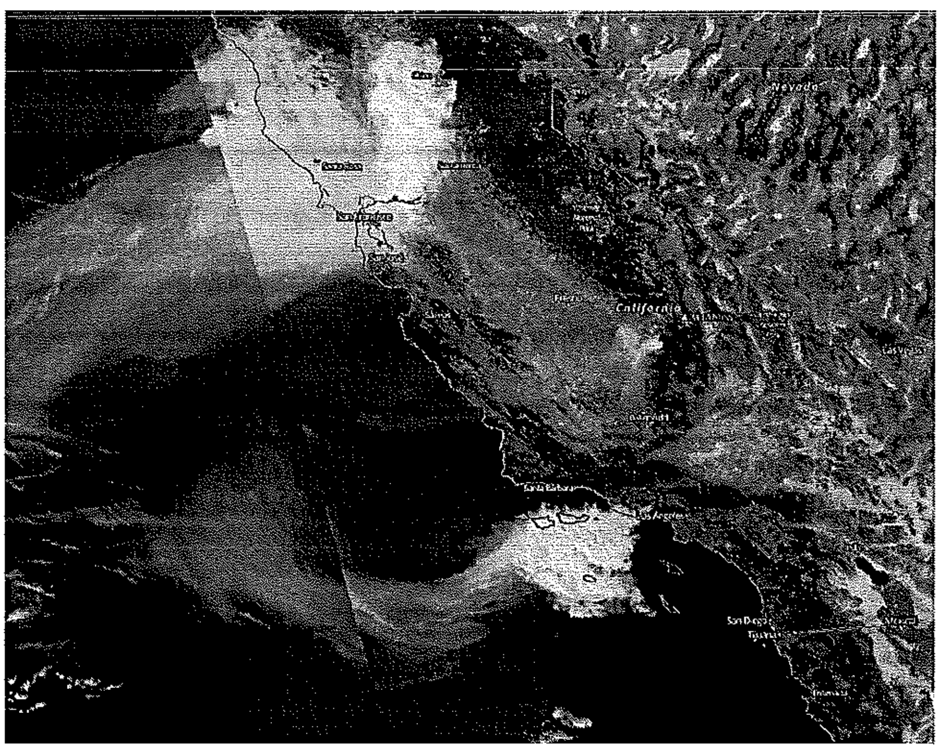
airnow.gov/publications/wildfire-smoke-guide/wildfire-smoke-a-guide-for-public-health-officials/

Appendix B: Satellite Imagery and $PM_{2.5}$ AQI Values[39]

November 8, 2018

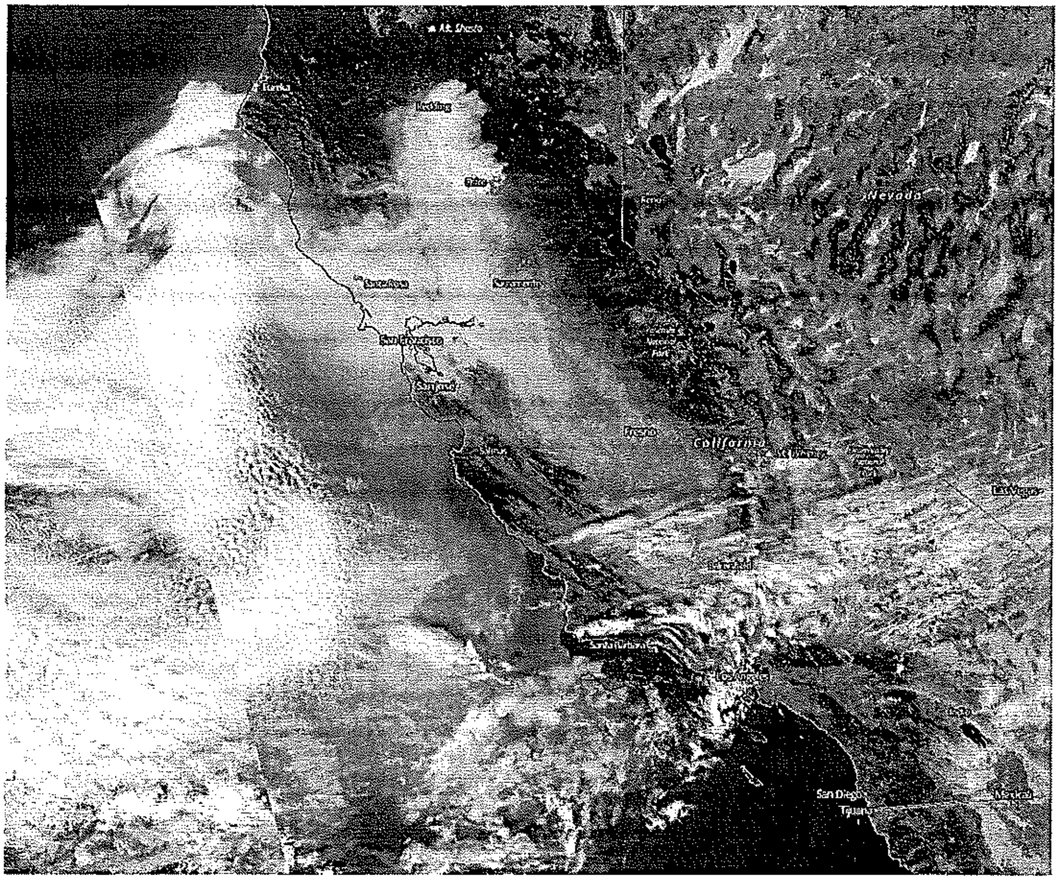


November 9, 2018

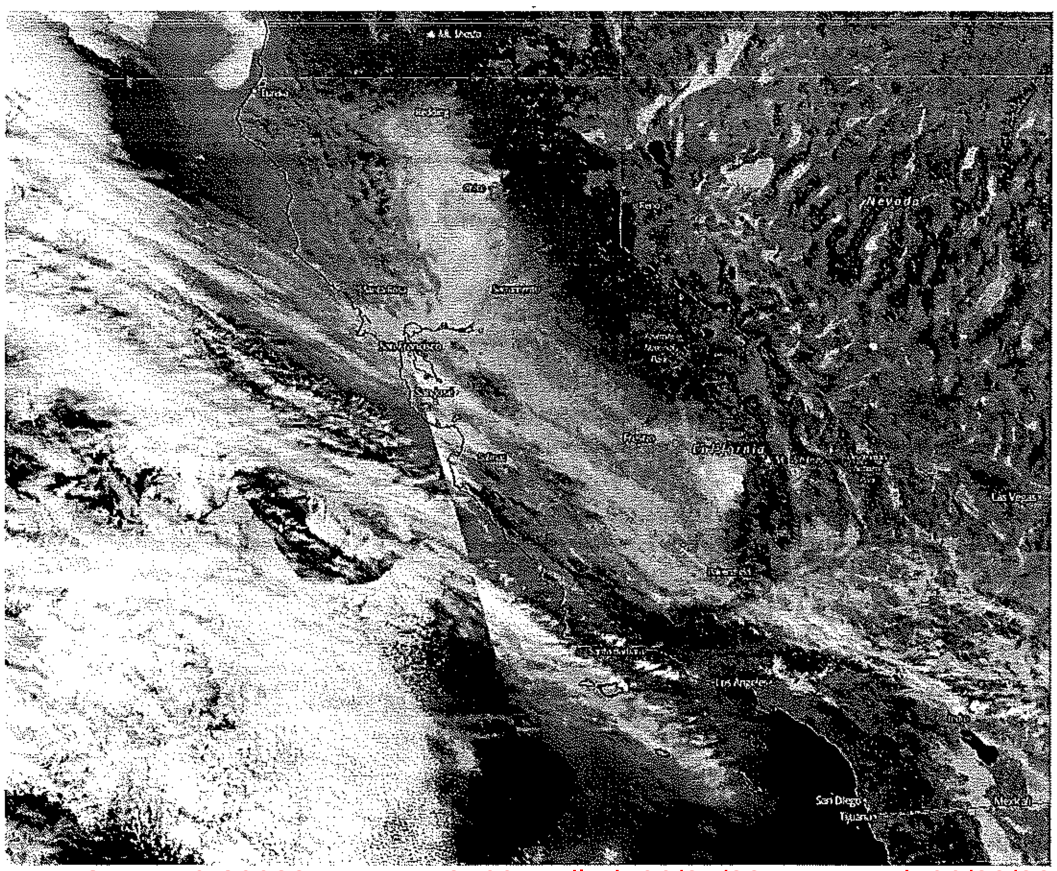


39 MODIS Terra and Aqua Corrected Reflectance (True Color) Satellite Images, NASA Worldview, *worldview.earthdata.nasa.gov*, downloaded 10/7/20

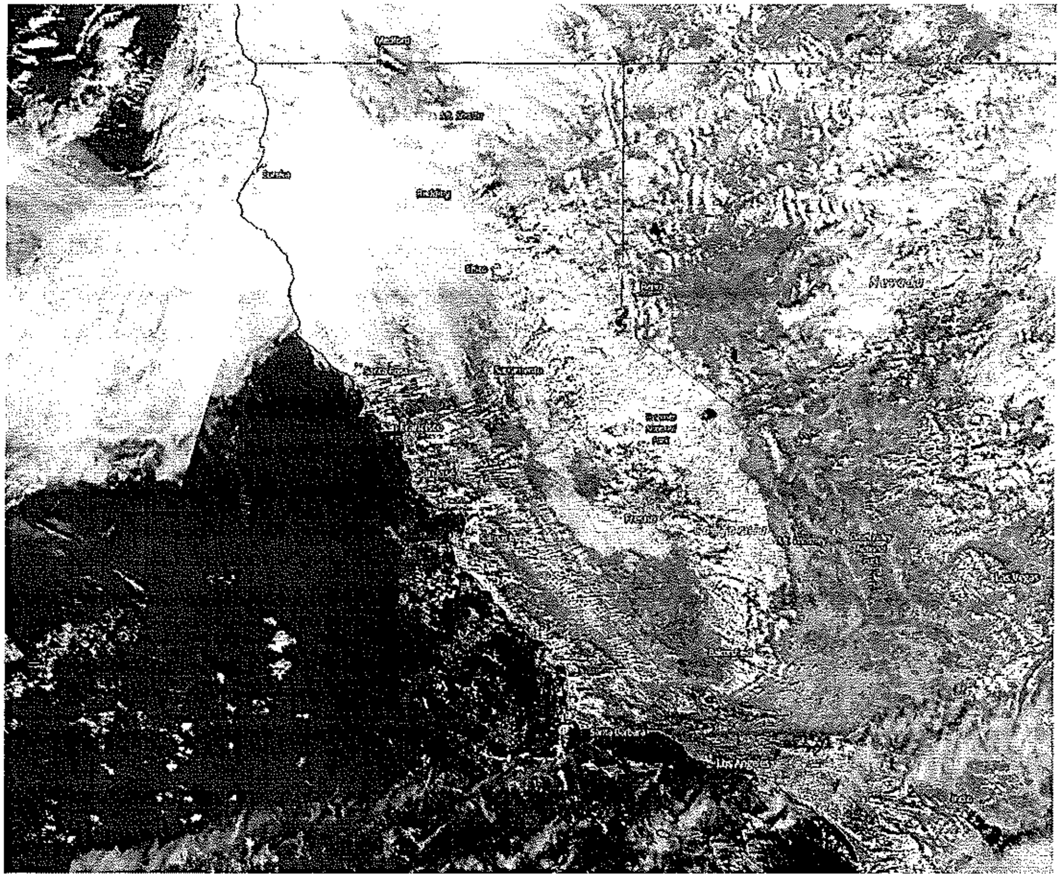
November 16, 2018



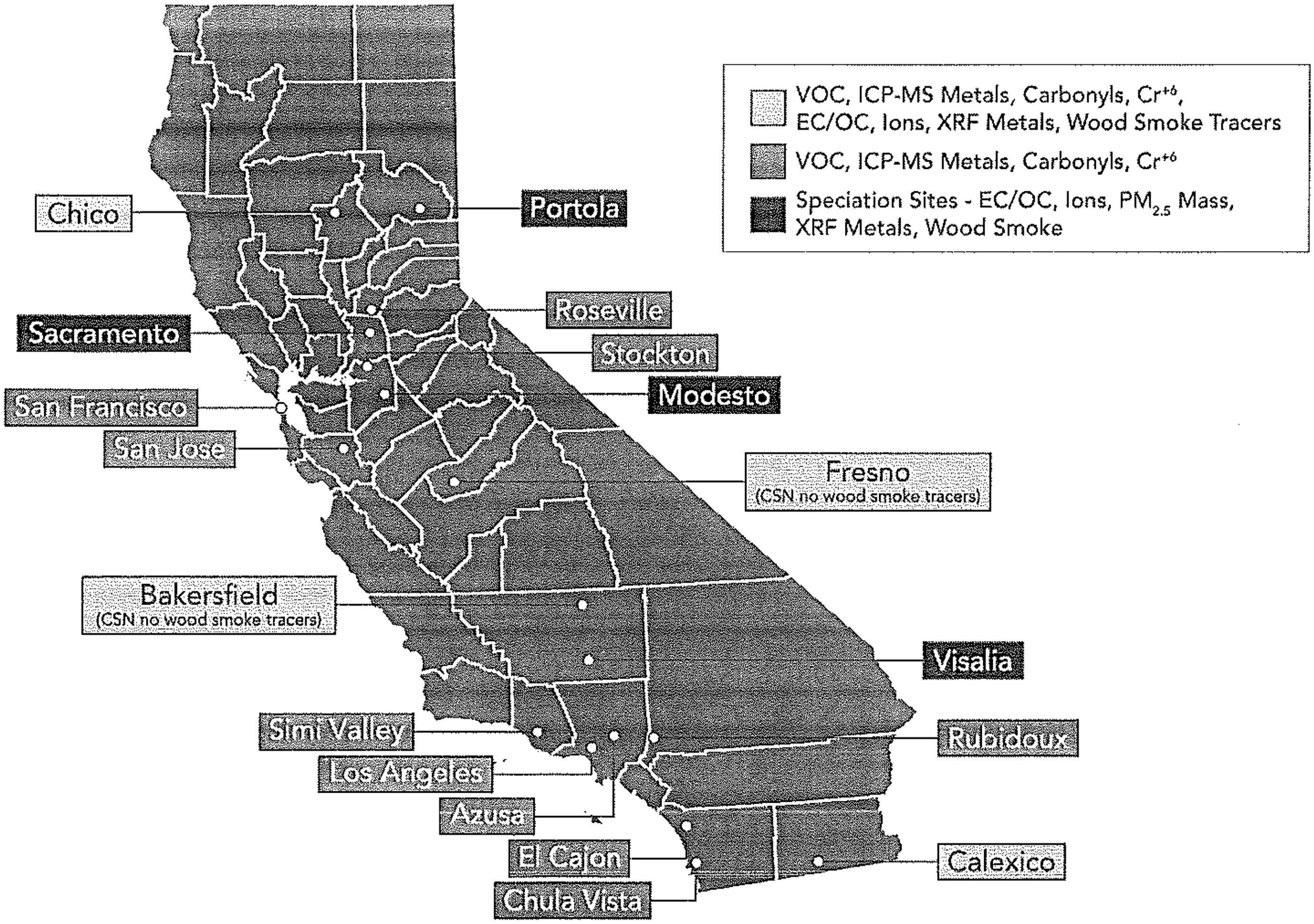
November 18, 2018

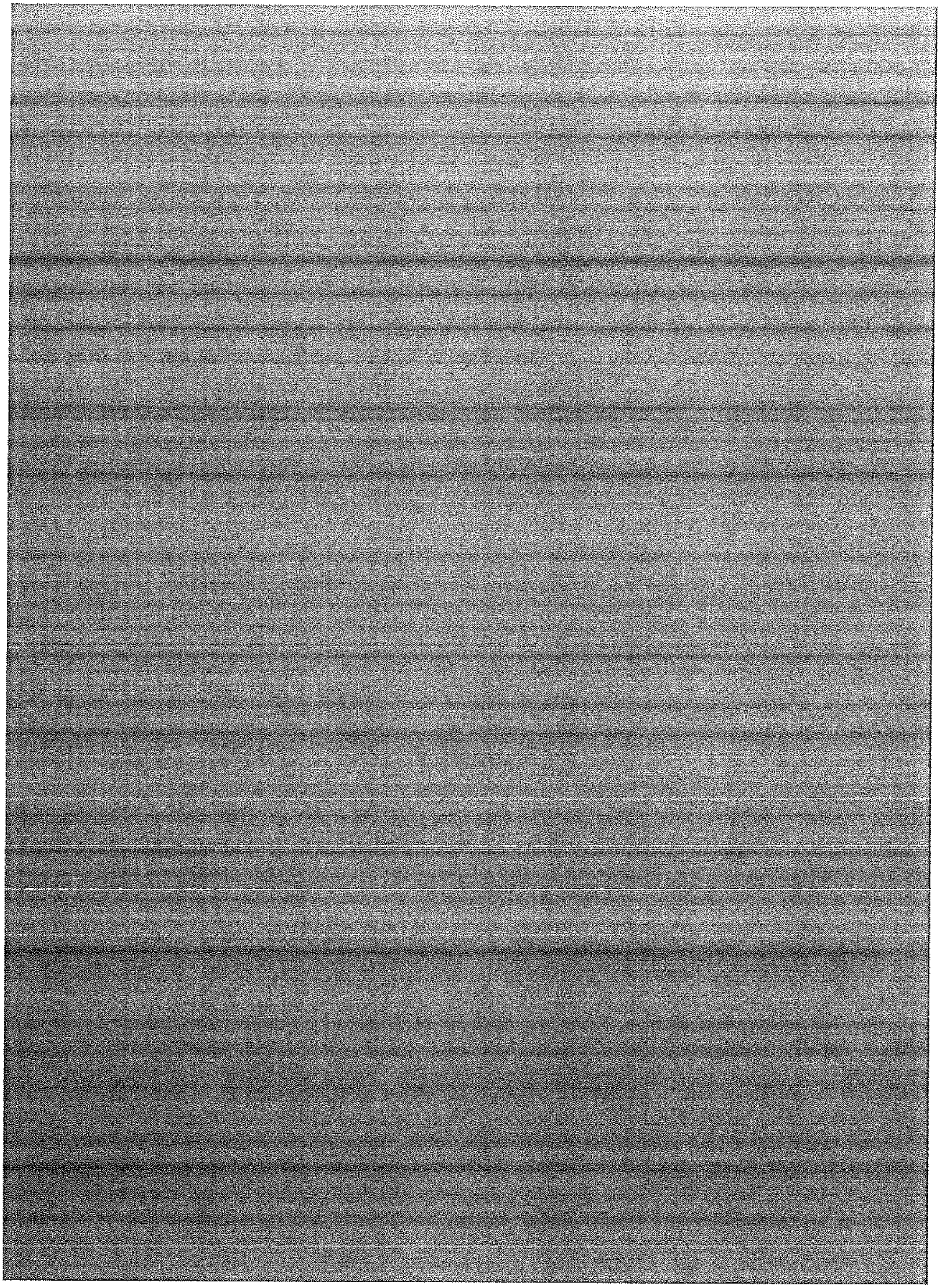


November 22, 2018



Appendix C: Toxics Air Monitoring Sites





California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812
(916) 323-2514
arb.ca.gov

Air Quality Planning & Science Division
Monitoring & Laboratory Division
Research Division
arb.ca.gov/our-work/programs/wildfires

D. MARTIN
3108 ALOHA LANE
CHICO, CA.
95973

U.S. POSTAGE PAID
FCM LG ENV
CHICO, CA
95928
JUN 21 22
AMOUNT
$2.76
R2305K142044-25

UNITED STATES POSTAL SERVICE
1000
94102

RECEIVED
JUN 27 2022
U.S. BANKRUPTCY COURT
NORTHERN DISTRICT OF CALIFORNIA

JUDGE DENNIS MONTAL
COURTROOM 17
U.S. BANKRUPTCY COUR
NORTHERN DISTRICT OF C
450 GOLDEN GATE AV
MAILBOX 36099
CA